

STATE LIBRARY OF PENNSYLVANIA



3 0144 00048995 5

REFERENCE
USE IN LIBRARY ONLY

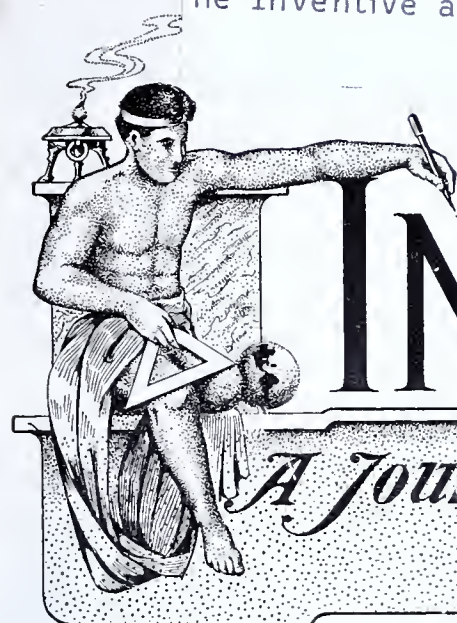


PENNSYLVANIA
STATE LIBRARY



Digitized by the Internet Archive
in 2017 with funding from

This project is made possible by a grant from the Institute of Museum and Library Services as administered by the Pennsylvania Department of Education through the Office of Commonwealth Libraries



The INVENTIVE AGE

*A Journal of Manufacturing Industry and
Scientific Progress.*

VOL. XXVI. No. 1.

WASHINGTON, D. C.—JANUARY, 1914.

SINGLE COPIES 10 CENTS.
ONE DOLLAR A YEAR.

THE KOHLERERBERG AERIAL RAILWAY LINE.

By FRANK C. PERKINS.

THE electrically operated aerial railway up the Kohlererberg, near Bozen, in the Austrian Tyrol, and its equipment, may be noted in the accompanying photographs. This installation shows one of the best solutions of the problem of transporting goods and passengers up heavy inclines, such as a mountain side, or an irregular formation.

The illustration of this aerial railway gives a good idea of the tremendous grades which are encountered. It will be observed that the cars are suspended from cables and are as comfortable as a modern electric car. They travel in a smooth and easy manner along steel suspension cables.

The Kohlererberg aerial line has a total length of 5000 feet, and it is carried by 12 structural steel supports, as shown in the photograph, the highest of which is about 90 feet above the ground, and a distance of 2000 feet from the lower station. Some of the supports are 25 feet in height, and the others vary between these two dimensions.

The passenger cars are each capable of holding 15 passengers and the driver, the two cars traveling simultaneously each way. The speed is such that in thirteen minutes a difference of level of 100 feet is traversed. Each car is pulled by two traction cables, which are operated from a power station placed close to the line.

It may be stated that the object of duplicating the cables is to secure safety in case of the breakdown of one of the cables, and the same means is adopted in connection with the suspension cables.

The cars are supported from a traveling mechanism carried by eight pulleys. They can swing like a pendulum, while a brake retards any due oscillation. All fear of derailment due to sidewise oscillation is avoided by the fact that the carrying cables themselves swing with the car. In order to secure immunity from break-



FIG. 1.—THE CAR HALF WAY UP THE MOUNTAIN.

down of the transmission system even if the power plant fails to operate, a storage battery is installed, which operates in parallel with the generator. A system of telephones and electric signals is installed throughout the

track, and the driver from any part of the line can communicate with either the upper or lower terminal station. The cars cannot be started before the necessary signals have been given between these two stations, and confirmed so that there is no danger of mistake. In addition to this, safety is studied in connection with every detail of the equipment.

It is pointed out that the traveling mechanism of the car contains two braking arrangements which operate automatically if there is an excess of speed. The same device operates if the carrying cable breaks or if a break should occur in either one of the hauling cables. The brakes are automatic but the operator can put them into service by hand, the process being simple and quick, and when this catching device is put into action, steel jaws grip the carrying cables at eight different places. The friction is sufficient to hold the car firmly in position even on an incline, and simultaneously by the movement of the same mechanism, the supply of electricity to the driving motor is stopped.

To provide further security and insure the safety of the passengers in the event of a breakdown, there is a spare car kept at each station in readiness to go to the point where the ordinary car is left suspended, in order to transfer the passengers and bring them back to the nearest available station.

It is said that the regular passenger car is also fitted with a special device in the floor by means of which it is possible to lower the passengers to the ground from the car direct. This hoist is fitted with a brake, to prevent undue speed in descent; and should the driving gear of the whole line break down, thus stranding the cars in the middle of the route, an auxiliary winder is available for bringing the cars back to their terminal position.

The framing whereby the car is suspended from the truck is made of nickel steel, of ample strength and

weight, and of an inverted V-shape, being connected to the traveling truck by means of two strong pins on which it swings so as to maintain equilibrium. This suspending frame is fitted with a platform, gained from the driving seat of the vehicle by means of an iron ladder which provides access to all parts of the machinery. The traveling truck is fitted with eight wheels, four on each cable. The design

low. The track suffers from no damage from snow, and cables cannot become loaded, as they are kept clean by the traveling truck. The power needed for operation is slight, as the descending car counterbalances the ascending vehicle. Both loads being of about equal weight, the current is consumed only in overcoming friction and in loss of power in the driving gear. The method would seem to be



FIG. 2.--STARTING A CAR ON THE AERIAL RAILWAY.

of the whole is such that derailment is considered impossible.

It is claimed that this application of electric traction has been so carefully designed in all its details that absolute safety and reliability of service is assured. In this aerial system of transmission, a great number of difficulties have been avoided which would otherwise have been encountered in proceeding over such a rough and mountainous route.

The success of this design of rope railway has caused greater attention to be given to the elevator method of ascending mountains. Rapidity and cheapness are the notable features of the system, the whole of this particular railway having been completed within the short space of twelve months. It also enables railways to follow almost an air line between points, instead of involving curves to maintain a suitable grade, and to avoid obstacles.

The maintenance expenses are also

excellently adapted for the purpose, and the successful operation of this line may result in opening up mountain passes to travel that are now practically unattainable.

An Electrical Auctioneer.

A silent auction seems an anomaly, but when one becomes used to it, it will be found to have certain advantages. A new application of electricity is involved, and the application has been made to the egg auctions in Holland, which take place regularly. Under the new arrangement, each bidder sits in a numbered seat, and is given a push button connected with a large dial upon which is marked the range of prices. It is also connected with a similar set of numbers upon a large wall board. An attendant slowly moves the dial hand, and the bidder registers his bid by pressing the button at his seat, simultaneously stopping the dial hand and lighting up a corresponding figure on the board. An electric communicator registers and tells off the number and seat of the bidder. In this way the disorder and confusion of an auction are avoided.

FREE PISTON FOR GAS ENGINE COMPRESSOR.

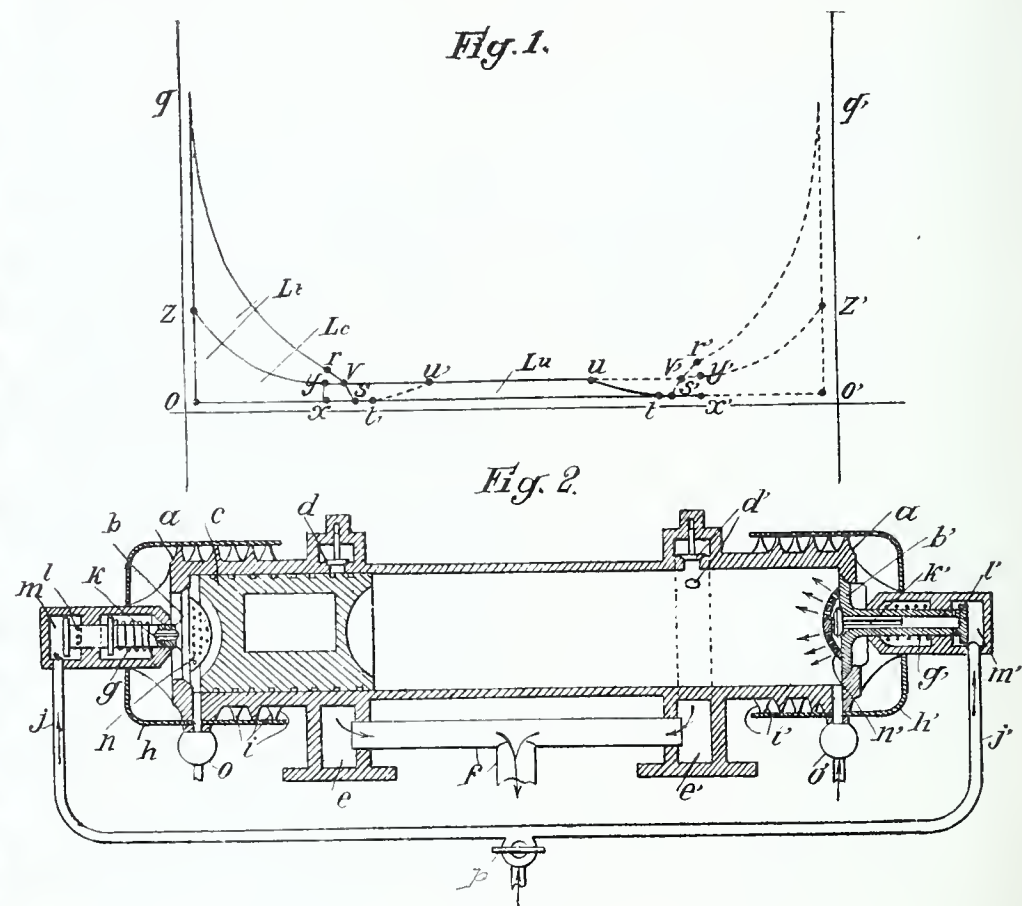
THE accompanying drawings show the details of construction of a unique apparatus designed by Giuseppe Matricardi of Pallanza, Italy, in the form of a free piston internal combustion compressor. In the use of this interesting device the consumption of oil fuel is said to be 120 grams per horsepower hour, with fuel equivalent to 10,000 calories; and with alcohol of 6850 calories as fuel, the consumption is held to be 180 grams per horsepower hour.

In this compressor the cycle of operation is of special interest. There is a heavy piston propelled from one end of a cylinder to another by the explosion of a charge of gas behind it, and during its motion it expels the air in front of it through a port, and thence through a non-return valve into a reservoir.

cation with the fuel pipe *a* noted in drawing Fig. 2.

When the main valve opens, these small orifices are masked, so that no fuel can enter from the fuel pipe during the process of drawing air into the cylinder. Supplementary openings at *b b* are used to supply a charge of compressed air in starting up. In operation the piston is at the left hand end of the cylinder, with a charge between it and its cover. The charge is fired by the rise of temperature due to the previous compression, as seen in Figs. 1 and 2.

It will be seen that as soon as the piston reaches the point *B*, it uncovers the port in the cylinder wall, and some of the gases behind it, being at a higher pressure than those in the reservoir, pass through this port into the latter, the pressure of which is represented by the point *C*.



It will be seen that the piston near the end of its travel overruns the port, and compresses into the end of the cylinder a fresh charge, which is exploded in its turn, shooting back the piston to the other end, and in its passage the piston compresses and discharges into a reservoir the air in front of it, as before. The piston is thus shot to and fro between the two ends of the cylinders, drawing in air on one side, and compressing and discharging it on the other. Each end of the cylinder is closed by a large valve, through which the air to be compressed enters the cylinder.

There is a cap arranged over each cylinder end, as indicated. All the air is caused to pass between studs cast on the outside of the cylinder. The stem of each of these air admission valves is hollow, and terminates in an enlarged end, as shown. Immediately below this enlargement a number of fine holes are drilled through the wall of the valve stem, which, when the main valve is closed, are in communi-

When the piston moves forward the pressure falls below that of the atmosphere, as represented by the point *D*, and a suction stroke is made, which terminates at *E*. The piston then begins its return stroke.

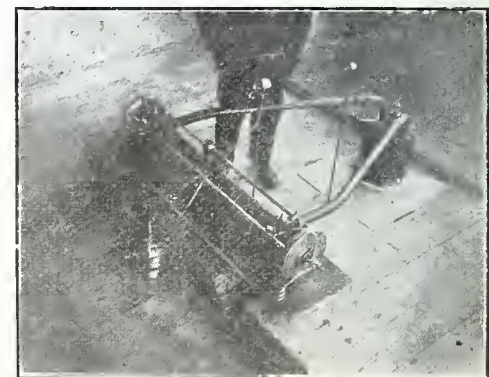


FIG. 3.

As the inlet valve is closed and the pressure inside the cylinder is less than that of the reservoir, there is a charge of petrol or oil sprayed through the fuel-valve until the return

of the piston has compressed the entrapped air *F*. The pressure then remains constant, and air is discharged into the cylinder until the piston masks the discharge port at a point corresponding to *G* on the diagram. Beginning at this point compression starts and continues along the line *G H* until the temperature rises sufficiently to ignite the charge, when a return stroke is made.

It will be seen that the cycle of operation and the indicator diagram are exactly the same for one end of the cylinder as for the other. The fuel charge is not admitted until after the air inlet valve is closed. It thus remains near the head of the cylinder, and is not wasted through the discharge pipe, to the reservoir.

It is clear that all of the products of combustion pass into the latter, raising the temperature of the mixture there and increasing its available energy. There is a total consumption of five pounds of gasoline per hour.

BOOK REVIEW.

AVIATION.

An Introduction to the Elements of Flight.

By ALGERNON E. BERRIMAN,

Technical Editor of "Flight" and the "Auto," Associate Fellow of the Aeronautical Society, Member of the Institution of Automobile Engineers. With thirty plates and many diagrams.

Publishers.

METHUEN & COMPANY, LTD., LONDON.

GEORGE H. DORAN COMPANY, NEW YORK.

There is an ever-increasing number of people who desire to appreciate the main issues of technical subjects unconnected with their own professions, and to these this book will particularly appeal.

This work aims at explaining the principles of flight and of the functions performed by the various parts of the aeroplane. Chapters are devoted to constructional features, equilibrium, steering, propulsion and resistance.

The subjects have been divided into four main parts. The first part relates to the fundamental principles of flight. The second part is concerned with practical accomplishments, referring in detail to the work of such pioneers as Lilienthal and the Wrights, and also has chapters on modern development as demonstrated, for example, at the military aeroplane trials in 1912. The third part is mainly historical, and is placed in this order so that the significance of the "milestones" may more readily be appreciated. The fourth part is a collection of appendices, that have no proper place or exact sequence in the body of the book. Among these there has been included several simple numerical examples, which will be of assistance to the student.

The book is profusely illustrated, the pictures being a few of the many hundreds that were prepared in the usual course by the staff of "Flight," and are typical of the illustrations that appear in that journal every week.

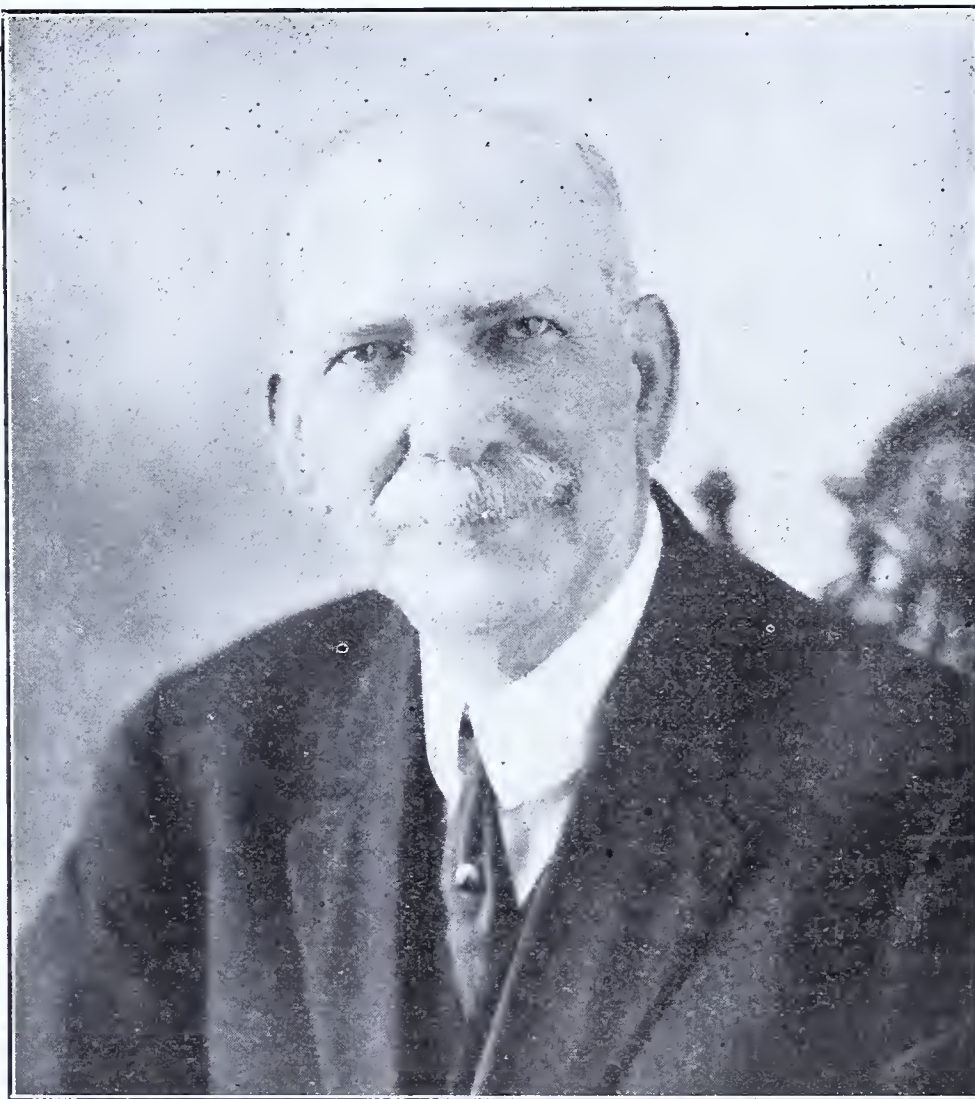
We have had occasion to review a number of books on this subject, but this is by far the best that has been brought to our attention.

THE NEW ASSISTANT COMMISSIONER OF PATENTS.

The President has appointed James T. Newton, as Assistant Commissioner of Patents. We commend this appointment without hesitation. Mr. Newton has been in the Patent Office for twenty-two years, during which time he has identified himself with many branches of the work.

As a native of Georgia, Mr. Newton received his earlier education in the schools of that state, graduating from the University of Georgia. He later attended the Georgetown University of the District of Columbia for his education in law.

After completing his collegiate education, Mr. Newton taught school until March, 1891, when he was appointed, as a result of a civil service examination, a Fourth Assistant Examiner. He was made a Second Assistant Examiner in November, 1902, as a result of an examination for promotion. In 1893, Mr. Newton was made Law Clerk; and in the following year, Chief Clerk. Mr. Newton has held the position of Principal Examiner since 1896, having charge of the following classes: Measuring Instruments, Horology, Phonographs and Optics. As principal examiner, he had charge at one time of the division of trade-marks, labels and prints, and his management of that division was eminently satisfactory.



HON. JAMES T. NEWTON.

Immediately upon his induction into office as Assistant Commissioner on December 1, 1913, Mr. Newton was made chairman of the committee to pass upon the examination papers in a written competitive examination among the examining corps of the Patent Office, the first examination that has been held for twelve years.

Mr. Newton brings to his new office a knowledge of its workings possessed by few officials. There is little about the Patent Office that Mr. Newton does not know, and, because of his wide experience, he is qualified to safeguard the interests of the government as well as to accord, to every inventor and attorney, the considerate recognition of their interests which marks all his dealings. His long connection with the Office has not made him, in any sense, a bureaucrat, imbued with the idea of his own importance, and whose business it seems to be to obstruct every effort to secure a proper enforcement of the patent laws. One feels assured, when having business with Mr. Newton, that consideration and justice will be given measured by the exact knowledge which broad experience brings.

No better appointment could have been made. Mr. Newton, who is in the prime of life, is able, active and genial, and carries with him to his new office all the qualifications necessary for a successful administration. Inventors, attorneys, and the public in general, are to be congratulated upon his acceptance of the position.

EXHIBIT OF SAFETY DEVICES.

Among the large American industries exhibiting the advance that has been made in accident prevention and life-saving methods, appliances, and devices, at the First International Exposition of Safety and Sanitation, (which opened Dec. 11, 1913, at Grand Central Palace, N. Y. City) were the Pennsylvania, New York Central, Southern Pacific, Baltimore and Ohio, and Chicago and North Western Railroads, the New York Edison Company, the New York Telephone Company, the National Cash Register Company, the Welin Marine Equipment Company, and the United States Steel Corporation.

The Pennsylvania Railroad, which was awarded a gold medal by the American Museum of Safety last year for advance in safety, and which has a remarkable safety organization consisting of thirty committees, presided over by a central safety committee, arranged an interesting exhibit based on practical experience. Men from the various shops demonstrated every hour how they revive a comrade who had been shocked by coming in contact with the third rail.

The New York Central Railroad reproduced at the Exposition the safety car which travels over all of the New York Central lines and in which lectures and practical demonstrations in safety work are given. This missionary car for safety was the feature of the New York Central's exhibit. Other railroads showed progress in safety signalling systems, methods of inspection, and rules regarding yard practice for employees.

The New York Edison Company exhibited the many safety devices in use at the Waterside generating stations, 39th street and East River, where half a million horsepower in electrical energy is generated every day, and in the various sub-stations throughout New York City. By means of these safety devices the Edison Company has practically eliminated danger in the careful handling of electricity.

The Welin Marine Equipment Company showed the progress made in saving life at sea. Their exhibit included davits, rafts, life boats, and various kinds of life preservers.

The New York Telephone Company, which maintains rest rooms, lunch rooms, and roof gardens for its operators, and which is particularly active in caring for the health and comfort of its thousands of employees, had an interesting exhibit.

The United States Steel Corporation showed in a graphic manner how the health and lives of the workers in an extremely hazardous industry are protected.

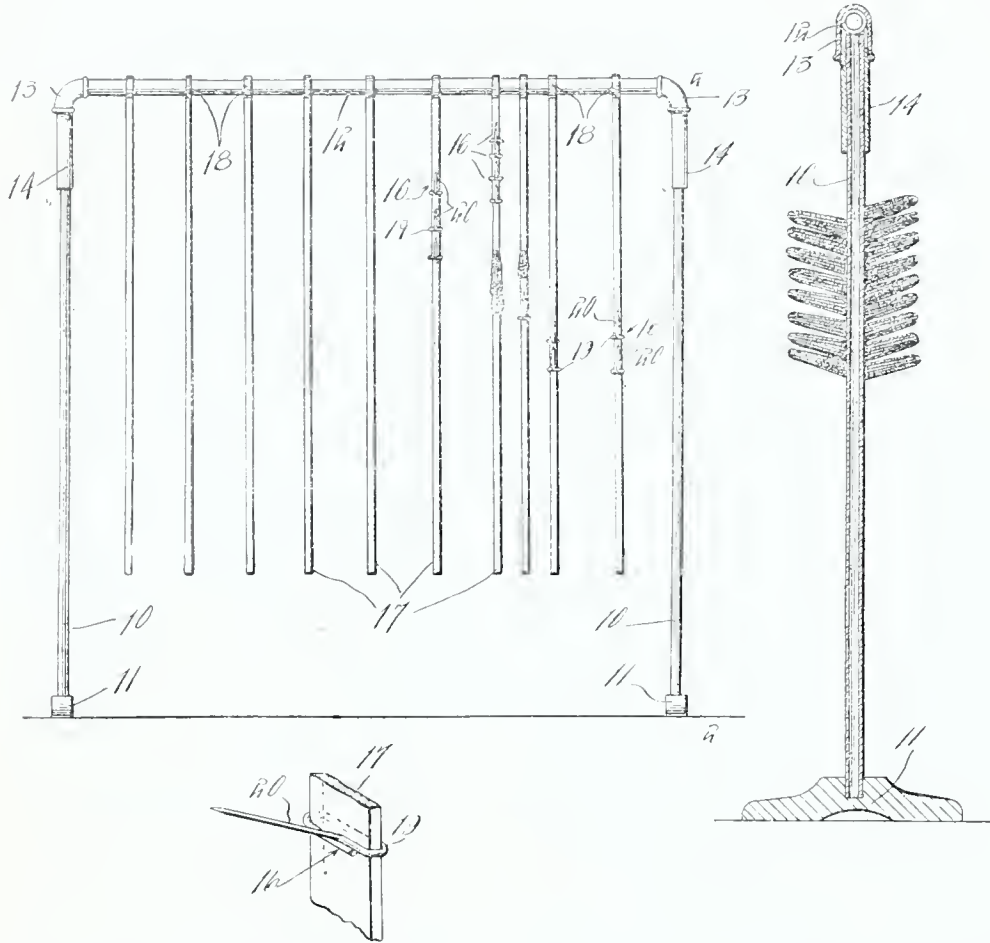
In connection with the Field Hospital exhibited by the United States Army, a detail of fifty soldiers were sent to the exposition from Fort Totten on certain days, and under direction of Major Rutherford, these men went through physical drills and exercises which are especially designed to correct certain physical faults and ailments. These exercises are part of the doctor's prescription for the enlisted men, and by strict adherence to them it has been found by Major Rutherford that the health and physical condition of the men at Fort Totten has been improved at least 50 percent.

CLEVER NEW PATENTS.

SEED RACK—METHOD OF REMOVING STUMPS—GUARD FOR SMOKING-PIPES.

Seed Rack.

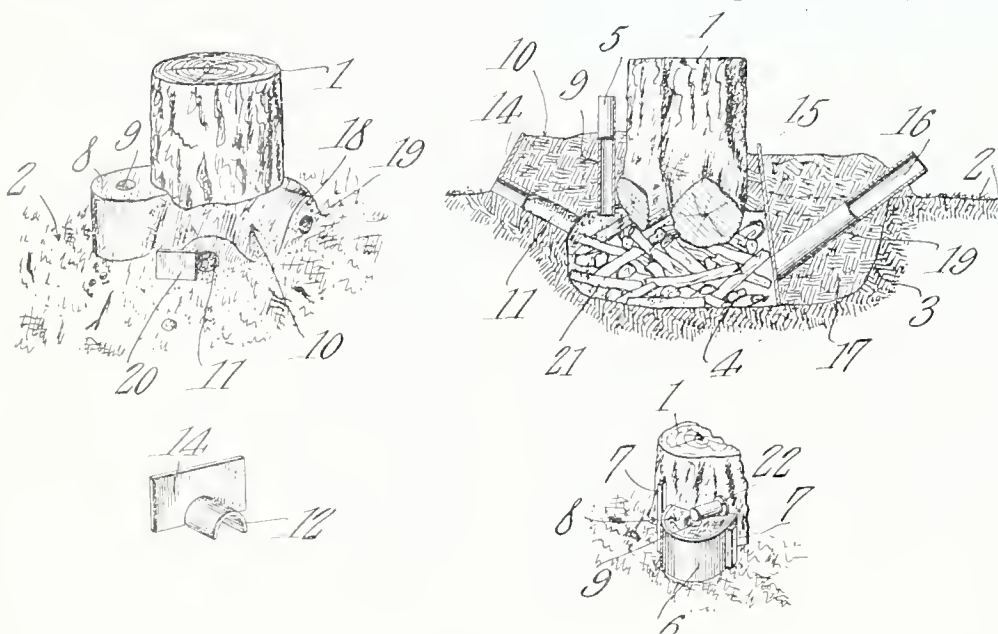
The importance of proper selection and handling of seed corn is coming daily into wider recognition, and one of the signs of the times is the fact that inventive genius has addressed itself to methods of preserving the ears of corn. A rack for this purpose has been recently patented by Michael E. Reilly, of New Hampton, Iowa. As seen from the cuts, it consists of a pair of uprights socketed into a stand, with a transverse bar threaded in each end with one arm of an elbow 13. Extending from the other arm of each elbow is a cylinder 14 which fits over the upper ends of the uprights. It will be seen that such a



stand can be easily taken to pieces for shipment. Rods 17 are hooked over the bar, these rods being short enough to prevent rats or other vermin from reaching the ears of corn which are suspended from ear-holding members 16 attached to the rods. These members are made from wires, bent into elliptical loops so as to slide on the rods 17 as shown in the small figure at the bottom. The other end of each member has a spur to be inserted in the cob of the ear of corn. When an ear of corn is carried by the free end of the member, the weight will rock the loop and cause it to bind against the rod, thus preventing the ear-holding member from sliding downward by gravity. It will be seen that this structure is compact and convenient, and that its parts are readily adjustable.

Method of Removing Stumps.

Farmers have always found the removal of stumps from the ground, in clearing it for cultivation, a difficult and tedious task. A novel method has been invented by Wm. W. Pope, of Tylertown, Miss., of disposing of the stumps with a minimum of labor and without the use of expensive tools. In this method, the work of excavating is done when the ground is wet, so that



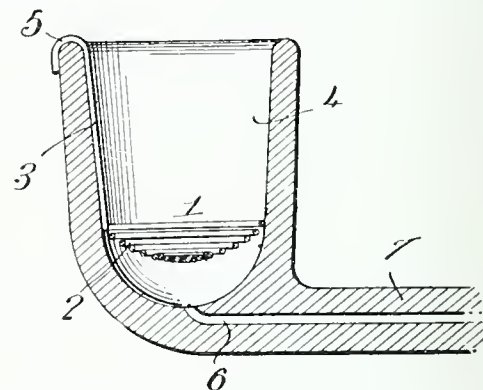
the earth will not cave in. A shaft is sunk near the stump, and then a lateral drift is cut beneath the stump to fashion a fuel chamber. A tube is then thrust down into the fuel chamber and a plate 5 placed around it, its ends touching the stump, as shown in the small cut. Pins driven into ground hold the plate in place. Earth is tamped about the tube, which may then be removed, leaving

the opening 9, after which the plate and pins are also removed, leaving the earth in the form seen in the large cut. An opening 11 is then bored into the fuel chamber and a trough 22 inserted, the earth being tamped against the face plate 15, whereupon this is removed. The mouth of the drift 4 is covered, and an incline tube located to touch the plate 15. The fuel chamber has meanwhile been cleaned out and fuel inserted. After the plate 15 and the tube 16 have been put in place, the back filling 17 is tamped into the shaft. The plate 15 is drawn up, and the tube retracted, the trough with its face plate 14 being inserted into the end of the hole 19 made by the removal of the tube 16, and the earth being tamped against the face plate 14 to give the opening 19 a finished appearance as shown in the cut. A burning brand is then introduced into the opening 19, which ignites the fuel, and the stump will burn away gradually. As it burns, the incinerated portions will drop down into the fuel chamber, leaving the unconsumed portions of the stump exposed to the action of the flame. More fuel may be introduced if necessary. The opening 19 serves as an air inlet, the gases of combustion moving up into the openings 9 or 11. These openings may be partially closed, or opened or closed alternately to regulate the draft and to draw the flames in the direction needed. The smaller drawings show an element used to fashion the outlets of the openings into the fuel chamber; and the manner in which one of the openings is made, with earth about it. The tamping of the earth about the stump causes the flames to eat their way up through the heart of the wood, preventing its outside from burning first and causing the earth to fall in about it. When the earth is wet, the heat bakes the inner surfaces of the fuel chamber, making it hard and incapable of caving. If the stump has been sawed off close to the earth, the entire top of the stump may be covered with earth without impairing the value of the process. It will be seen that this method gives the fuel a maximum efficiency. The ashes are carried off by the rainwater into the subsoil and fertilize the same.

Guard for Smoking-Pipes.

One of the drawbacks to the enjoyment of a peaceful smoke, is to have your pipe clogged by particles of tobacco. Devotees of my Lady Nicotine will be grateful to Charles H. Robinson, of Deadwood, South Dak., for he has invented a device to be inserted in the bowl of the pipe just in advance of the smoke duct, so as to prevent the clogging of the latter. He provides a guard the central part of which consists of close convolutions located directly above the draft opening of the bore, and designed to prevent the small particles of tobacco from being drawn into the bore; and of outer convolutions which are spaced so as to permit of the required draft. The device is constructed from a single length of wire, bent to provide an inner spiral portion whose convolutions are spaced so that the guard is rendered substantially foraminous or porous, to permit of a perfect draft of the pipe. The outer convolution of this portion is extended into annular supporting portion 3, having its free end bent up against the inner wall of the bowl and provided with a hook which fits over the edge of the bowl. The spiral portion of the guard lies on

the bottom of the bowl just before the duct 6, and supports the tobacco so that it will not be drawn into the duct when draft is supplied to the stem, thereby preventing the choking of the duct. The device is such that the spiral portion may be slightly expanded if desired, so as to accommodate itself to the inner diameter of the bowl.



It is stated that the inner convolutions are disposed in closer relation than the outer convolutions, so as to give the article the maximum effectiveness just above the duct and prevent bits of tobacco from escaping through the guard at the center. The device will also prevent the accumulation of tobacco in the bottom of the bowl, which aids in preventing the clogging of the smoke duct.

PATENTS

Send Your Business Direct to Washington . . .
. . . Saves Time and Insures Better Service.

Trade Marks,
Copyrights
and
Designs.

My office is close to the U. S. Patent Office. Personal attention given—OVER THIRTY YEARS PRACTICE. Book "How to Obtain Patents," etc., sent free. Patents procured through E. G. Siggers receive special notice, without charge, in the—

INVENTIVE AGE

Illustrated Monthly—Twenty-sixth Year.
Terms, \$1.00 a Year.

E. G. SIGGERS, 918 F STREET, N. W.,
WASHINGTON, D. C.

LATEST COURT DECISIONS IN PATENT, COPYRIGHT AND TRADE-MARK CAUSES.

BERNZ v. SCHAFFER et al.

(District Court, D. New Jersey, May 6, 1913.
205 F. R. p. 49.)

1. PATENTS—CONSTRUCTION OF CLAIMS.

Where the claim of a patent on which a suit is based omits a feature which is contained in other claims not in suit, it cannot be construed as covering such feature, but it must be presumed that it was intentionally differentiated.

2. PATENTS—INVENTION — MULTIPLICATION OF PARTS.

There is no invention in making in one part what was formerly made in two, or in two parts what was made in one, when by such change no different result is attained.

3. PATENTS—INVENTION.

Cheapening the cost of an article by simplifying its construction does not constitute patentable invention.

4. PATENTS — VALIDITY — AIR PUMP FOR BLOW-TORCHES.

The Beruz patent, No. 937,757, for an air pump for blow-torches, claim 2, is void for lack of patentable novelty and invention in view of the prior art.

ELLIOTT CO. v. LAGONDA MFG. CO.

(District Court, W. D. Pennsylvania. April 30, 1913. 205 F. R. p. 152.)

1. PATENTS — SUIT FOR INFRINGEMENT — MULTIFARIOUSNESS OF BILL.

A bill for infringement of a number of patents, the charge of infringement being based on the alleged breach of license contract affecting all, is not multifarious.

2. CONTRACTS — VALIDITY — AGREEMENT MADE TO SETTLE LITIGATION.

A written agreement, made to settle litigation, will be enforced, unless impeached for fraud, accident, or mistake.

3. PATENTS—"LICENSE"—CONSTRUCTIONS—LIMITATIONS.

By a written agreement, made between complainant and defendant to settle litigation involving patents relating to boiler-tube cleaners, defendant was licensed to manufacture, use, "and sell to others for use throughout the United States" the combination of a patent, followed immediately by the words: "But such license shall not be held to authorize the manufacture, sale, or use * * * after July 1, 1908, of any form of cleaner-head or motor that infringes letters patent on cleaner-heads or motors now or hereafter owned by" complainant. Held, that such contract limited defendant to a sale of the devices for use in the United States, and also estopped it to contest the validity of any patents owned by complainant after July 1, 1908, relating to cleaner-heads or motors, and that such limitations were valid.

STEVENSON v. SHALCROSS et al.

SHALCROSS et al. v. STEVENSON.

(Circuit Court of Appeals, Third Circuit. March 22, 1913. 205 F. R. p. 286.)

1. PATENTS — VALIDITY — DOOR FRAME.

The Stevenson patent, No. 817,199, for a door frame, the distinctive feature of which is an angle-iron brace connecting the lower ends of the side jambs, to be imbedded in a concrete floor, is void for lack of patentable invention.

2. PATENTS—VALIDITY AND INFRINGEMENT—DOOR MECHANISM FOR COLD STORAGE ROOM.

The Stevenson patent, No. 812,377, for door frames and mechanism for air-tight compartments, consisting of devices relating to the doors and shutters of cold storage rooms having an overhead trolley to carry the load in and out of the room, held void for lack of invention as to claims 1, 2, 3, and 7, and not infringed as to claims 4 and 5.

UNITED STATES v. PATTERSON et al.
(District Court, S. D. Ohio, W. D. Feb. 3, 1913. 205 F. R. p. 292.)

1. MONOPOLIES—RIGHTS GIVEN BY PATENT—ANTI-TRUST ACT.

Both the patent laws and the Sherman

Anti-Trust Act (Act July 2, 1890, c. 647, 26 Stat. 209 [U. S. Comp. St. 1901, p. 3200]) were enacted under constitutional authority, and they must be construed together, giving full force and effect to each so far as that may be done. That a patentee, by putting his invention to use, has become entitled to a monopoly in its manufacture and sale, and that his competitors in interstate commerce therein are infringers of his patent, does not give him a right to resort to methods of unfair competition to force the competitors out of business; and such action, pursuant to a conspiracy or combination, is in restraint of interstate commerce, and in violation of the Anti-Trust Act.

2. MONOPOLIES—ANTI-TRUST ACT — PROSECUTION FOR VIOLATION — DEFENSES—EVIDENCE.

Defendants, who were officers and agents of a manufacturing corporation, were indicted for conspiracy and combination in restraint of interstate commerce in cash registers and for monopolizing such commerce, in violation of the Sherman Anti-Trust Act (Act July 2, 1890, c. 647, 26 Stat. 209 [U. S. Comp. St. 1901, p. 3200]). On the trial the government introduced evidence tending to show the conspiracy, and that in pursuance thereof defendants, by methods of unfair competition, had forced competitors in interstate commerce in cash registers to go out of business and sell their plants to defendant's company. Held, that evidence offered by defendants to show that their company was the owner of certain patents, and that the machines made and sold by such competitors were infringements, did not tend to establish a defense, and was irrelevant and incompetent, unless in connection with other evidence showing that the fact of infringement, and not defendants' unlawful acts, was the cause of the competitors going out of business.

HUGHES et al. v. ALFRED H. SMITH CO.

ALFRED H. SMITH CO. v. HUGHES et al.
(District Court, S. D. New York. April 9, 1913. 205 F. R. p. 302.)

1. TRADE-MARKS AND TRADE-NAMES—NAMES SUBJECTS OF APPROPRIATION—DESCRIPTIVE WORDS.

The word "Ideal," as applied to a hair brush, is not descriptive, in such sense as to preclude its use as a trade-mark.

2. TRADE-MARKS AND TRADE-NAMES—PERSONS WHO MAY ACQUIRE—MERCHANT.

A merchant, having the exclusive right to sell in the United States a patented article made by the patentee in a foreign country, may adopt a trade-mark for such article, not used by the manufacturer, for the protection of his own business, and is entitled to protection in its use in this country after the expiration of the patent as against the patentee.

3. TRADE-MARKS AND TRADE-NAMES—INFRINGEMENT—OWNERSHIP—RIGHT OF RESTRICTION.

Complainant and his predecessors in business for many years, under a contract giving them the exclusive American rights, sold a hair brush made in England and patented by the manufacturers both in that country and in the United States. Complainant's predecessors selected the name "Ideal" as a trade-mark for a particular grade of such brushes, and had the brushes of that grade made for them so marked at the factory, although the same brush was sold in England under another name. They also sold other brushes covered by the patent of different grades under other names. They at no time acted as agents for the makers, but bought their brushes outright. After the United States patent expired in 1903, complainant made a contract with the makers giving him exclusive right to sell their brushes in this country for a term of years, which contract expressly recognized his ownership of the trade-mark "Ideal" by providing that in the event of his death before the expiration of the contract it should become the property of the manufacturers. Such contract was afterward abrogated by mutual consent; the manufacturers reserving the right to sell their brushes in the United States under another name. In 1905 complainant registered his trade-mark of "Ideal"; his application showing that it had been in actual and exclusive use by him for more than 10 years. Held, that as it had never been used to identify the patented article as such, but the origin of the sale by complainant and his predecessors, it was the property of complainant, and not of the patentees, and that under Trade-Mark Act Feb. 20, 1905, c. 592, § 5, 33 Stat. 725 (U. S.

Comp. St. Supp. 1911, p. 1462), which provides that "nothing herein shall prevent the registration of any mark * * * which was in actual and exclusive use as a trade-mark of the applicant or his predecessors from whom he derived title for ten years next preceding" the passage of the act, it was entitled to registration and to protection by injunction from infringement by the English patentees or their agents in the United States.

MAXWELL STEEL VAULT CO. v. NATIONAL CASKET CO.

(District Court, N. D. New York. May 17, 1913. 205 F. R. p. 515.)

1. PATENTS—VALIDITY—METAL CASKET.

The Maxwell patents, No. 759,727, for a fastener for sheet metal caskets, and Nos. 753,728 and 800,930, each for sheet metal caskets are not so clearly void on their face for lack of invention as to warrant dismissal of a bill for their infringement on that ground.

2. EQUITY — PLEADING — ALLEGATIONS OF BILL UNDER NEW EQUITY RULES.

Good pleading as well as new equity rule 25 (198 Fed. xxv, C. C. A. xxv) demands a plain and concise statement of the facts constituting the ground upon which the plaintiff asks relief without unnecessary recital or repetition. When more than one cause of action is stated in the same bill, they should be separately stated, but it is good practice in stating a second cause of action to refer to some prior allegation in the first to avoid repetition.

3. PATENTS — SUIT FOR INFRINGEMENT—PLEADING.

New equity rule 25 (198 Fed. xxv, 115 C. C. A. xxv), prescribing the contents of a bill, does not abrogate the established rule in infringement cases requiring the bill to allege compliance with Rev. St. §§ 4886, 4887 (U. S. Comp. St. 1901, p. 3382), and all facts necessary to show that the patentee was entitled to the patent and to negative the existence of those facts which would defeat the patent.

4. EQUITY—PLEADING—"ULTIMATE FACTS."

The ultimate facts required to be pleaded in a bill by new equity rule 25 (198 Fed. xxv, 115 C. C. A. xxv) are the issuable facts, without proof of which complainant cannot recover.

WRIGHT v. BROWNLEE et al.

(District Court, E. D. Pennsylvania. May 16, 1913. 205 F. R. p. 526.)

PATENTS—VALIDITY—PRIOR INVENTION BY ANOTHER—GAS HEATED SAD IRON.

The Wright patent, No. 1,001,331, for a gas heated sad iron, claims 4 and 5, held invalid on the ground that the device therein shown was not the invention of the patentee but in all essential respects of one of the defendants, who used due diligence in perfecting his invention and had completed it and perfected it prior to the filing of a caveat by the patentee, who had been shown the same and had full knowledge of it.

REECE FOLDING MACH. CO. v. EARL & WILSON (three cases).

REECE FOLDING MACH. CO. et al. v. SAME (five cases).

(District Court, N. D. New York. May 24, 1913. 205 F. R. p. 536.)

PATENTS — SUIT FOR INFRINGEMENT — PRELIMINARY INJUNCTION.

The Reece patent, No. 792,916, the Donmandy patents, Nos. 904,317 and 924,151, and the Fenwick patent, No. 606,528, all relating to machines for folding and pressing blanks for collars and cuffs, held infringed, on a motion for a preliminary injunction, by machines patented and installed in its plant by defendant, and an injunction granted restraining defendant from making or selling infringing machines or installing additional infringing machines in its factory; it being a licensee of complainant and having a covenant in its contract not to infringe or contest the validity of complainant's patents.

REECE FOLDING MACH. CO. v. EARL & WILSON.

(District Court, N. D. New York. May 24, 1913. 205 F. R. p. 539.)

INJUNCTION — GROUNDS — BREACH OF CONTRACT—ADEQUATE REMEDY AT LAW.

Complainant leased to defendant for use in its factory a number of machines covered by a large number of patents, under a license contract to continue during the term of the patents, unless sooner terminated by defendant on notice. In such contract de-

fendant covenanted not to infringe any of the patents nor contest their validity. Complainant's title thereto. Held, that complainant could maintain a suit in equity to restrain defendant from violating its contract by making and installing machines of its own, which admittedly infringed a number of complainant's patents, and to recover damages for which would require multiplicity of actions at law.

THOMA et al. v. PERRI et al.

(District Court, D. Massachusetts. April 17, 1913. On Rehearing, May 14, 1913. 205 F. R. p. 632.)

1. PATENTS — SUIT TO OBTAIN PATENT—PARTIES.

A suit in equity under Rev. St. § 4915 (U. S. Comp. St. 1901, p. 3392), to obtain the issuance of a patent which has been refused to complainant by the decision of the Supreme Court of the District of Columbia in interference proceedings awarding priority of invention to another applicant, may be maintained against such applicant although he has assigned his rights under the application; it being within the discretion of the Patent Office to issue the patent to him notwithstanding the assignment.

2. PATENTS — SUIT TO OBTAIN PATENT—VENUE.

A suit in equity to obtain a patent brought under Rev. St. § 4915 (U. S. Comp. St. 1901, p. 3392), may be maintained in any district where valid service can be had on the defendant without regard to his place of residence.

PAINE v. PARKHURST.

(Circuit Court of Appeals, Sixth Circuit. May 20, 1913. 205 F. R. p. 740.)

1. PATENTS—CONTRACT FOR SALE OF PATENT—DELIVERY OF PATENT—"PATENT"—"TITLE DEED."

A "patent," like a "title deed," is a personal chattel, and a contract for the sale of the patent right may require the delivery of the original letters patent.

2. PATENTS—SALE—CONSTRUCTION OF CONTRACT—AGREEMENT TO DELIVER ORIGINAL PATENT.

A contract for the sale of a patent required the seller to forward the "original patent papers," together with an assignment, to a bank for examination by the purchaser, who, if they were found regular, agreed to accept them and pay the bank the agreed purchase price. Held, that the delivery of the original letters patent was a material requirement of the contract, and their tender by the seller a condition precedent to the creation of any obligation on the part of the purchaser to complete the purchase.

DANIEL GREEN FELT SHOE CO. v.

DOLGEVILLE FELT SHOE CO.

(District Court, N. D. New York. June 11, 1913. 205 F. R. p. 745.)

1. PATENTS—VALIDITY AND INFRINGEMENT—PROCESS OF MAKING FELT SHOES.

The Green patent, No. 894,733, for a shoe and process of making the same, which relates to felt shoes, was not anticipated, and discloses patentable invention of quite high order; also held valid against the defense of prior public use and infringement.

2. PATENTS — INFRINGEMENT OF PROCESS PATENT—EVIDENCE.

Identity of product is some evidence of identity of the process of manufacturing.

3. PATENTS—VALIDITY—PRIOR PUBLIC USE—"ON SALE."

The advertising of an article more than two years before application for a patent therefor does not in itself establish that the article was on sale, so as to defeat the patent, where there were no actual sales until within the two years.

4. PATENTS—VALIDITY—PRIOR PUBLIC USE.

While an inventor is experimenting to complete and perfect his product, the utility of which can be determined only by use of the thing by others, he may sell the things made, but he must not sell the completed and perfected invention more than two years before his application for a patent therefor.

5. PATENTS—VALIDITY—PRIOR USE—SUFFICIENCY OF EVIDENCE.

To establish prior public use or sale to defeat a patent, the evidence should be clear, satisfactory, and convincing, and mere memory of a witness after a lapse of several years as to time or the identity of similarity of articles is not sufficient.

MECHANICAL INVENTIONS

Patents for which have been procured through the Patent Soliciting Office of E. G. Siggers, Patent Lawyer, Washington, D. C.

William Larson, Bonner, Montana, inventor; Wallace W. Markle, same place, assignee. Lumber Piling Machine.—The object of the present invention is to provide a portable machine designed for handling both lumber and other heavy material, such as logs, rails, timbers and the like, enabling the same to be readily transferred from a wagon to a stack or pile, or vice versa, and adapted to be advantageously employed for loading and unloading cars, boats, and various other vehicles. The lumber piling machine comprises a wheeled supporting frame, upright frames mounted on the supporting frame and having upwardly and inwardly inclined sides, and oppositely inclined endless conveyor chains located at opposite sides of the wheeled frame and having outer flights traveling upwardly at one side of the frame and downwardly at the opposite side thereof, said conveyor chains being arranged to carry the material upwardly at one side of the machine and over the top thereof, and downwardly at the opposite side of the machine. The machine is also equipped with skids extending outwardly from the upright frames for supporting lumber in the path of the conveyor chains at one side of the frame and for receiving lumber from the conveyor chains at the opposite side of the machine.

Olof A. Norlund, Williamsport, Pa. Two patents. Ice Creeper.—The first patent covers an ice creeper adapted to be removably attached to the sole of a shoe for affording a sure footing for pedestrians, athletes, and other persons, and equipped with sole engaging means, whereby the creeper is carried entirely by the sole of the shoe. The invention comprises a calk carrying plate, a plurality of sole engaging members, one of which is movable, and a lever mounted on the plate and operatively connected with the movable member and disposed in the plane of the plate to lie flush therewith when in locking position and adapted to be sprung out of the plane of the plate in moving to and from such locking position.

The ice creeper of the second patent is adapted to be readily applied to the heel of a boot or shoe and is capable of adjusting itself automatically to suit the side of the heel. It includes two side sections provided with transversely disposed arms, each section having a slot receiving an arm of the other section, whereby the sections are slidably connected, and straps connected with the arms and arranged to draw the sections inward automatically.

Jesse A. Bean, Texarkana, Texas. Three patents.—The object of the invention of the first patent is to provide a rein holder designed to be attached to any suitable place on a vehicle or hitching post, to enable both lines to be readily secured to it with one operation and to be removed from it by a single pull, and so constructed that the harder a horse pulls on the lines the tighter they will engage the holder without any material lengthening of the lines. The rein holder comprises a base plate, a body portion mounted on the base plate, and diagonally arranged prongs carried by the body portion and projecting beyond one end of the base plate in an upward di-

rection and inclined rearwardly away from the direct pull of the reins, said prongs being outwardly tapered from the body portion and forming a tapering slot between them and also a tapering space between the inner prong and the support to which the device is secured, whereby when the reins are looped about the inner prong they will wedge at one side between the inner prong and the adjacent support, and at the other side between the inner and outer prongs, the pull on the rein serving to tighten the engagement of the reins with the holder.

The second patent relates to a combined rein holder and whip socket adapted to be readily secured at the edge of a dash board of a vehicle, and capable of holding the reins and a whip in convenient position for instant use. The device includes a whip socket, a rein holder comprising upper rein engaging jaws, and a lower body portion having its outer edge fitted against the inner side of the whip socket and having its inner edge arranged to fit against the side edge of a dash board, and upper and lower clamps embracing the whip socket and having spaced inner side portions extending across the front and rear faces of the body portion of the rein holder and projecting inwardly beyond the same and provided with means for securing them to the dash board of a vehicle.

The third patent covers a shoe blacking and polishing machine adapted to be operated by any suitable power, and equipped with a plurality of longitudinally reciprocable brushes capable without stopping the machine of adjustment to present them successively in position to operate upon the shoes for cleaning the same, applying blacking thereto and finally polishing the shoes. Another object of the invention is to provide a shoe polishing and blacking machine having foot rests or supports capable of vertical and lateral adjustment, to raise and lower the shoes and to arrange them in parallelism with the reciprocable brushes, or at an angle thereto, so that the brushes may operate effectively on all portions of the shoes. The apparatus includes a foot rest, a support, a plurality of oscillatory levers mounted upon the support and extending above and below the same, a series of reciprocable brushes carried by the upper portions of the levers and located above the support, the latter being adjustable to present any of the brushes at the foot rest, a motor, and mechanism for connecting the motor with the lower arms of the levers for oscillating the latter.

Oron Overton, Mobile, Alabama. Three patents.—The aim of the invention of the first patent is to provide a bicycle pedal adapted to be applied to the crank of a bicycle, motor cycle, or other similar machine by means of an ordinary pin or bolt, and capable of being constructed of sufficient strength so that in the event of a severe fall sufficient to break the pedal pin, only the latter will be broken, whereby the same may be easily and cheaply replaced from a tool bag or other source of supply, without affecting the pedal bearing or other parts of the pedal. The device comprises in its construction a crank having a threaded opening, a pedal pin provided with a threaded inner end to engage the opening of the crank and having a head at the outer end, the pedal pin being smooth and cylindrical between the head and the threaded end, an inner sleeve arranged on the pin, an outer sleeve receiving and spaced from the inner sleeve, antifriction devices interposed between the sleeves, inner and outer pedal frames carried by the inner and outer sleeves and having spaced side portions and abutting end portions, and pedal rubbers secured between the side portions of the frame.

The second patent also covers an improvement in pedals for motor

cycles and provides a construction in which the pedal pin may be readily replaced in case of breakage. The pedal of this patent is adapted to dispense with antifriction balls and similar antifriction devices, and is equipped with a bearing including inner and outer sleeves, and means for preventing a separation of the same should the pedal pin become broken, so that the bearing faces of the inner and outer sleeves will not become filled with dirt and grit through an accident of that character. The device comprises a crank, a pedal pin mounted in the crank, an inner sleeve arranged on the pedal pin in a relatively fixed position, a relatively rotary outer sleeve, a pedal frame carried by the outer sleeve, a nut mounted on the outer sleeve and having an extension, and means concealed within the extension of the nut and engaging the same and the inner sleeve for retaining the inner and outer sleeves against relative longitudinal movement.

The third patent relates to a side car attachment for motor vehicles, and the invention has for its object to provide a side car attachment adapted to be readily applied to a motor vehicle and equipped with a side wheel, and provided with means for laterally adjusting the same and the motor cycle for arranging the wheel and the motor cycle either in a vertical position, or at an angle to the vertical irrespective of the character of the surface of a track or road, whereby the motor cycle or motor vehicle may be maintained in an upright position on an inclined track, and also may be run at a high speed on a level track or other surface with safety, especially while turning the machine at the curves or turns of a track or road. The invention comprises a frame, a seat carried thereby, opposite wheels arranged in spaced relation, mechanism for connecting and maintaining the wheels in parallelism, an operating device spaced from the said mechanism and arranged adjacent to the seat within easy reach of the operator, and connections between the operating device and the said mechanism for adjusting the latter to arrange the wheels either in a vertical or an inclined position, said device being capable of operation while the vehicle is in motion.

Edward H. Barton, Spokane, Wash. Door Holder.—The object of the present invention is to provide for the use of carpenters and other mechanics a clamp to be applied to the lower portion of a door for firmly engaging the floor and of rigidly holding the door at any angle, while the same is being mortised for a lock, or while a lock is being applied thereto or repaired, or when it is desired to operate on the door for other purposes. The door holding clamp comprises an approximately U-shaped horizontally-disposed frame composed of spaced sides and a connecting bend, and provided at one of its sides with a fixed jaw for engaging one side of the faces of a door, the other side being provided opposite the said jaw with a threaded opening. A clamping screw is mounted in the threaded opening and coacts with the fixed jaw to clamp the door. The connecting bend of the horizontal frame is provided with an integral vertical casing extending above and below the frame and having a flat inner bearing face to bear against the edge of the door and steady the clamp thereon. A vertical floor-engaging plunger is guided in the casing, a coiled spring encircles the plunger for forcing the latter into engagement with the floor, and an operating arm is connected with the plunger for moving the same upwardly against the tension of the spring.

Peter A. Biddinger, Mansfield, Ohio, inventor; Herman W. Remy, same place, assignee. Collapsible Receptacle.—It is the aim of the present in-

vention to provide a collapsible receptacle, constructed of rectangular shape, which may be easily and quickly set up for use, and is adapted to be compactly folded in a flat condition so as to be returned to the shipper at a minimum freight rate. The collapsible crate consists of two separable independently foldable sets of sections, one of the sets including the bottom, rear wall and top or cover of the receptacle, and the other set consisting of the front and side walls. The two sets or sections, which are provided with means for detachably interlocking them in set-up relation, may, when separated, be arranged flat one upon the other, and be shipped in that relation.

David Cline, Watsontown, Pa. Heating Apparatus for Vehicles.—The present invention, which is applicable to carriages, wagons, sleighs and analogous vehicles, is designed principally for the use of mail carriers, doctors, preachers and others, and may be readily applied to such a vehicle and is capable of maintaining the same in a warm comfortable condition in extremely cold weather. Another object of the invention is to provide a perfectly safe heating apparatus in which the amount of heat may be controlled or regulated according to the weather, and which may be arranged for heating an entire carriage, or only the front portion thereof, when the rear seat is unoccupied. The apparatus comprises a heater provided with means for securing it to the front of a dash of a vehicle, and having a rearwardly projecting burner arranged to extend over the upper edge of the dash, a heat conduit connected with the heater and having a bottom portion arranged at the bottom of the vehicle, and upright sections composed of vertical and horizontal portions to fit the seats of a vehicle and provided at the top with damper-controlled outlets. The apparatus is equipped with hand warmers adapted to warm the hands of a person while driving without interfering with the free use of the lines.

John W. Pheils, Toledo, Ohio. Two patents.—The first patent covers a ventilating register designed for use in school rooms, club rooms, churches and various other public places and capable of taking the cold and foul air from the room at the bottom thereof next to the floor, whereby the room is maintained at an even temperature. The register includes a casing provided at opposite sides with guides successively decreased in length, a plurality of slats operating in the guides, the latter being set at an inclination to cause the edges of the slats when closed to rest flat against one another to form a tight closure, and means for operating the slats.

The second patent relates to a door lock designed for use on school building and other public institutions, and adapted for either single or double doors, and capable of being operated only from the inside. Another object of the invention is to provide a door lock equipped with key-operated mechanism for fastening it in its locked and unlocked position, whereby it will be impossible to operate the lock either to fasten or unfasten a door without a key. The door lock includes upper and lower locking rods, a pivoted operating lever eccentrically connected with the inner ends of the operating rods and adapted to move the same inwardly and outwardly, a keeper having spaced projecting portions forming a bifurcation to receive the lever and provided with slots, and a catch mounted on the keeper and operating through the slot of one of the projecting portions, said catch being provided with means for engaging the lever and having means arranged to be operated by a key introduced in the slot of the other projecting portion.

NEW PATENTS FOR SALE.

Advertisements inserted in this column for 10 cents a line (about 7 words) each insertion. Every new subscriber sending \$1.00 to THE INVENTIVE AGE will be entitled to the AGE one year and to five lines three times FREE. Additional lines or insertions at regular rates.

FOR SALE—The only meritorious railroad rail joint coupling and support ever patented. Worth millions. Will sell cheap. Address, Charles C. Acker, Winnsboro, Tex. mar

FOR SALE—Patent No. 1,064,939, dated June 17, 1913. Adjustable stand for barrels and cans. All offers considered. Address, John Sunkler, Salinas, California. mar

FOR SALE—U. S. patent issued July 8, 1913. A twister shovel plow with narrow land bar, integrally formed. Would make a royalty deal or have them manufactured. A copy of patent and model to one interested. Address, W. T. Simmons, Langley, Ark. mar

FOR SALE—Patent No. 1,073,065, issued Sept. 9, 1913. The Altman fence gap fastener. A clamp to replace gates and bars in wire fences and to make gaps in wire fences quickly and at a small cost. Can be used on any kind of wire fence. Will sell cheap for cash. Write for particulars to George M. Altman, R. F. D. No. 66, Parkers Landing, Pa. mar

FOR SALE—U. S. Patent No. 1,078,475, and Canadian Patent No. 152,467. A vertical oil burner for cook stoves. Will sell outright or state rights. For particulars write, Frederick L. Weeman, 89 1-2 Portland St., Portland, Maine.

FOR SALE—Patent No. 1,065,990. Agricultural machine. Combines in one implement a fertilizer distributor and seed planter. Address, R. L. Walker, Care of Mrs. J. J. Sligh, Tampa, Florida. feb

FOR SALE—A money maker for an investor. The Cory rail clip to prevent railroad rails from spreading. Is a gold mine for a monied man. Address, Henry T. Cory, Dexter, New York. feb

FOR SALE—Patent No. 1,043,687. A small crutch to be applied to any make of artificial limb. Is worn under the clothing and gives relief to wearer. Address, William A. Gilbert, 619 W. 127th St., New York City. feb

FOR SALE—Patent No. 1,030,028, dated June 28, 1912. Spark Arrester. Particularly designed for locomotive smoke stacks. Will prevent sparks and cinders from being ejected therefrom. Simple to build and cheap to manufacture. Address, Stampahar & Rom, P. O. Box 584, Red Lodge, Mont. feb

FOR SALE cash or royalty—U. S. Patent No. 1,070,414. Track adjusting device, and new improvements. Great labor saver in pulling ties and posts, lining tracks, etc. Address, John Contos, Box 114, Grand Island, Nebr. feb

FOR SALE—We have a patent for steel or iron forms for building solid concrete silos and tanks, which we wish to license on a royalty basis. Write to S. H. Love, 1111 Harris Avenue, Trenton, Mo. jan

FOR SALE outright or on royalty—Arnold's reinforced double reach buggy gear. Four times as strong as the old style gear. Cheaper to construct. Address, R. M. Arnold, Danville, Kentucky. jan

FOR SALE—Patent No. 1,067,407. Signaling devices for locomotives. A simple and effective device for protecting trains from robbery. Easily installed and inexpensive. Will entertain any reasonable offer either for whole, a part or royalty. Address, Charles H. Cobb, General Delivery, Great Falls, Mont. jan

FOR SALE—Sanitary Belt and Pad. This invention relates to ladies apparel, having in view the neatness of appearance of wearer. Used also in hospitals and surgical operations and sickness. Price for patent \$2,500. Address, Mrs. A. Schulz, Box 550, Monticello, N. Y. jan

FOR SALE—Patent No. 1,022,626, dated April 9, 1912. Self-detaching holdback for all single horse vehicles. Works automatically and obviates the wrapping of shafts. When the traces are detached the draft animal is free to move forward from the vehicle. Will sell the patent at a reasonable price, as I am in the lumber business and have as much as I can attend to. For full particulars address, W. A. Hagerman, 897 Queens Ave. London, Ont. jan

FOR SALE—U. S. Patent No. 1,062,107, issued May 20, 1913. Wire spoon holder to prevent spoon slipping into kettle. Cheap to manufacture. All offers considered. Royalty proposition preferred. Address, S. E. Lyon, 1122 Ogden Ave., Menominee, Michigan. feb

FOR SALE—Patent No. 996,622. Gearless mowing machine. Cutter bar is operated by a cam motion. Will sell for \$2,000. Address, John Paul DeRose, Pease, Minn. feb

FOR SALE—Patent No. 1,042,075, dated Oct. 22, 1912. Upright folding bed, with different new improvements. Please send proposition to Henriette Brandt, New Brighton, N. Y. jan

FOR SALE—Patent No. 1,036,408, patented Aug. 20, 1912. Automatic feeder for steam boilers. Will sell at very reasonable price. Address, John Alfredson, Box 210, Hibbing, Minn.

FOR SALE cash or royalty—Patent No. 1,059,929, dated April 22, 1913. A wind motor. Simple in construction, which can be built to develop from one to ten horsepower. Address, James M. Cull, Davenport, S. Dakota. jan

FOR SALE—Patent No. 1,025,786, issued Aug. 19, 1913. Steam turbine weighing 225 pounds generating 100 horsepower. Other patents pending. Address, G. W. Baker, Rheems, Pa. jan

FOR SALE—All or half interest in an exterminator trap and great new card game, an educational card game, just patented. This game has merit possessed by no other. Address, J. J. Hobbs, Box 205, Mathis, Texas. jan

FOR SALE—One half or whole patent on a farm gate. Every lumberman handles these farm gates. Something new and cheap. Every farmer needs one. Won't sag gates. Just two firms making farm gates, both in this city. Patent issued June 3, 1913. Investigate and make me a business offer. David Sherman, Galesburg, Ill. jan

FOR SALE—Must sell patent on a novelty penant staff holder for autos. Investors money maker. Terms reasonable. Write George O. Wood, R. D. No. 1, Danielson, Conn. jan

FOR SALE—Patent No. 1,023,436, dated April 16, 1912. Harrow. Will sell outright or on royalty. Embodies a new principle in harrow construction. Address, Martin Merkel, Celestine, Indiana. jan

FOR SALE outright—U. S. Patent No. 1,055,842, dated March 11, 1913. Magazine tobacco pipe. Best device ever invented for smokers. Cheap to manufacture. Will sell for reasonable price. Address, William W. Warden, Jr., Eads, Colorado. jan

FOR SALE—U. S. Patent No. 1,023,494, dated April 16, 1912. Current motor to produce power and light. Can be placed on any stream without damming or blocking same. Address, D. Bartoszewicz, Box 312, St. Joseph, Mich. jan

FOR SALE outright or on royalty—Patent No. 1,042,603. Removable buggy seat designed for carrying a third person. Something new and of merit. I have no means. If interested, address Mary Rockwell, Frankfort, Kansas. feb

FOR SALE—U. S. Patent No. 1,067,778, dated July 15, 1913. The Beaver snow plow. For railroad and street cars. Will sell outright. Terms reasonable. Address, John D. Beaver, St. John, Kansas. jan

FOR SALE—Cash. Patent No. 1,049,242, issued December 31, 1912. Combined mop holder and wringer. The mop will perform any one of the three different operations at will and without any adjustment whatever, either as a mop, mop wringer, or scrubber. Walls and ceilings may be cleaned. Simply remove the scrubber. The mop has been thoroughly tested for seven months and has been enthusiastically received by every woman who has tried one. All offers considered. Address, J. W. Krueger, Litchfield, Minnesota. jan

BUSINESS OPPORTUNITIES.

Let us give you prices on manufacturing your patents. Prices reasonable, well equipped. Patents bought and sold. S. D. Cruse & Co., Louisville, Ky. mar

CHAS. F. LAGANKE

MANUFACTURER OF

HIGH GRADE SPECIALTIES

MODELS AND EXPERIMENTAL WORK,

SPECIAL TOOLS.

Card Building, 118 St. Clair Ave. N. E.,
Correspondence Solicited. CLEVELAND, O.

Electrical Review and Western Electrician

Published weekly from the center of the industry, this publication is in the best possible geographical position to gather and present the most important and interesting news of the entire electrical industry.

SUBSCRIPTION PRICE

U. S. \$3.00 per year. Canada \$1.00 per year. Foreign Countries \$6.00 per year. Sample Copy Free

It is seen and read by practically every buyer of electrical material in this country and abroad. Advertising rates on application.

ELECTRICAL REVIEW PUBLISHING CO., 507 Marquette Bldg., CHICAGO.

A NEW BOOK FOR INVENTORS

Patents and How to Make Money out of Them,

By W. B. HUTCHINSON.

This is the only book published, giving a detailed and full account, from the author's actual experience, of just what steps are necessary from the time the invention is conceived, to the time it is sold, with a clear and concise resume of the law and practice, legally and commercially, of trade-marks and copyrights. It also tells accurately How and What to invent. How to sell inventions. Place them on the Market. Interest Capital in them, and to successfully Promote a Stock Company. It also contains an index of forms worth double the price of the book to any one interested.

ELEGANTLY CLOTH BOUND.

GOLD STAMPED. \$1.00 Postpaid

Sent with one subscription to AGE for \$1.50
Or will sell separately.

Address—The Inventive Age Pub. Co.,

918 F St., N. W. WASHINGTON, D. C.

HALF-TONES ZINC ETCHINGS
DESIGNS

LANMAN

ENGRAVING

COMPANY

PROCESS ENGRAVERS, ILLUSTRATORS, DESIGNERS.
TRADE-MARK DRAWINGS
EXECUTED.

"Quality and Speed"

POST BUILDING

Fourteenth St., and Pennsylvania Ave. N. W.
Phone. Main 673

MODERN ELECTRICS & MECHANICS.

"The Magazine That is Different."

Every man interested in patents and inventions should take at least one non-technical magazine and keep up-to-date on the new wonders and advances in electricity and mechanics.

Modern Electrics & Mechanics illustrates and describes these subjects in a style that you will easily understand and enjoy. It contains from 128 to 160 pages monthly and is full of instructive and valuable articles on how to make things at home and answers your questions free. Regular departments on "With the Inventor" and "Advice on Patents." Fifteen cents per copy on news stands, \$1.50 per year by subscription.

To acquaint new readers with this distinctive magazine we will send a three months' trial subscription for 25 cents, stamps or coin. Can you think of a better investment for a quarter? Better send to-day.

MODERN ELECTRICS & MECHANICS 292 FULTON ST., NEW YORK.

ATTENTION INVENTORS!

LISTS OF MANUFACTURERS FURNISHED.

We have increased our facilities for furnishing lists of manufacturers, and now cover every line of industry. The names are obtained from well known directories.

Our charge for each list is one dollar.

In ordering, please state specifically the class of manufacturers desired.

Address: INVENTIVE AGE Pub. Co., Dept. M. 918 F. St., Washington, D. C.

Every subscriber when sending \$1.00 is entitled to a free advertisement, not exceeding five lines, of any patent in which he may be interested. The ad. will be inserted three times.

THE INVENTIVE AGE PUBLISHING CO., Washington, D. C.

I herewith enclose \$1.00 for one year's subscription to

"THE INVENTIVE AGE."

I also enclose ad. for insertion in the (Patents for Sale*) (Want*) column of your paper.

NAME.....

P. O.

STATE.....

*Please indicate in which column you want the ad. inserted.

N. B.—Remit in the way most convenient.

Inventive Age

Established 1889.

Published monthly by

THE INVENTIVE AGE PUBLISHING CO.,

National Union Building, 918 F Street, N. W.,

WASHINGTON, D. C.

THE INVENTIVE AGE is sent, postage prepaid, to any address in the United States, Canada, Mexico, Hawaii, and Porto Rico, for ONE DOLLAR a year; to any other country, postage prepaid, ONE DOLLAR AND TWENTY-FIVE CENTS.

Correspondence with inventors, mechanics, patentees, and manufacturers, is invited. The columns of this journal are open for the discussion of such subjects as are of general interest to its readers.

Technical matter is particularly desired. We want practical information from practical men.

THE INVENTIVE AGE is independent.

Special facilities for furnishing cuts of any patented device together with descriptive article. Business specials 10 cents a line each insertion; 7 words to the line. No advertisement less than 25 cents.

Address all communications to

THE INVENTIVE AGE PUBLISHING COMPANY,

WASHINGTON, D. C.

Entered at the Post-office as 2nd class matter.

WASHINGTON, D. C., JANUARY, 1914.

RESTORE THE CAVEAT LAW.

We make this appeal in behalf of the inventor.

When we use the word "inventor," we do not refer to an Edison, or a Westinghouse, or a Wright, for they have achieved success with their inventions and no longer need the caveat law. The manufacturer also has no use for such limited protection: but to the small inventor, the embryo Edison, the future Wright, this law is essential. This is shown by the fact that there is scarcely an attorney in general practice before the Patent Office who does not receive inquiries weekly, if not daily, as to how an inventor can protect his invention while in its incomplete state.

It is true he can apply for a patent, but inventors do not care to make applications on incomplete and, in many cases, inoperative inventions. There are two reasons for this: First, it costs a great deal more to apply for a patent than to file a caveat. It is not the government fee alone that must be considered, but it is the different specification, claims and drawing required for a patent application. These papers do not have to be prepared with the same amount of care and attention when filing a caveat. Secondly, the Patent Office requires that an application for patent should disclose an operative invention, and when an application is presented on an incomplete device, the Patent Office can pick flaws in it, criticize its inoperativeness and reject the application on that ground.

A CAVEAT IS NOT SUBJECT TO REJECTION.

The purpose of a caveat was to secure to an inventor the opportunity to have the question of priority between himself and some rival inventor determined before issuance of letters patent to either. In the absence of such an opportunity, the first applicant for a patent would receive the grant, although as a matter of fact he was not the first inventor. If, after the issue of the patent, the earlier inventor should make application and success-

fully maintain his claim of priority, he would be entitled to and would obtain a patent also. Thus two outstanding patents for the same invention would exist, each vesting the exclusive right on a different patentee—a condition of affairs endangering the value of the invention not only to the rival patentees but to the public, since the use of the invention under either patent is a prima facie infringement of the other.

CAVEAT LAW DATED BACK TO 1836.

To prevent this difficulty as far as possible, Congress provided in 1836 the method of securing to inventors, who may not be ready to present their applications for patents, timely notice of the pendency of other applications covering the same invention, so as to enable them to make their claims and have them investigated by the Patent Office before any one would obtain the patent.

WHAT IS A CAVEAT?

A caveat is a written notice to the Patent Office that the caveator claims to be the first and true inventor of the article or improvement therein described. Its effect was to prevent the grant of a patent for the same invention, without notice to the caveator, in case an application should be filed by another inventor during the life of the caveat. A caveat could be renewed from year to year at the pleasure of the caveator. If not renewed it still remained in the secret archives of the Patent Office, although it ceased to secure any rights to the inventor. While it was in force, it was inaccessible to all persons except the inventor, or his duly authorized agent, and the officials of the Patent Office. Under the practice, whenever an application for patent for the same invention as that described in the caveat was filed by a rival inventor, either simultaneously with the caveat or during its life, and the invention described was found by the Patent Office to be patentable and to correspond apparently with that specified in the caveat, further proceedings in the application were suspended for a period of three months and the caveator was notified to file his application for patent in order that the rival claims might be determined by an interference proceeding. The caveator was then obliged to present his application within three months from the notice given. If the caveator failed to present the application within the period mentioned, the application for patent would no longer be delayed, and the patent would be issued to the applicant for the patent.

VALUE OF CAVEAT.

The principal value of a caveat was that it afforded evidence of the date of the invention described therein, and might be used as proof that the inventive act had been performed before the time when it was filed. We have always looked upon the evidential value of the caveat as its most important feature. When an inventor conceives an idea of an invention, he endeavors, if possible, to work it out in secret. Usually he keeps the idea to himself or discloses it to some trusted friend. Instances are too numerous to record

in which such a friend has failed to be trustworthy. A large number of the interference cases before the Patent Office have represented instances in which the supposed friend proceeded to develop the idea himself and applied for a patent ahead of the first conceiver.

CHEAP COST OF CAVEAT.

Under the caveat law, an inventor could prepare a description of his invention and have a drawing made and then file caveat in the Patent Office. If he chose to prepare the description and drawing himself, without the assistance of an attorney, he could do so and the caveat would cost him \$10. If he wished to employ an attorney to prepare the papers, their filing would cost anywhere from \$25 to \$40, according to the degree of complication of the invention. Many inventors, however, preferred to file their own caveats, and in many instances have the Patent Office make the drawings for the caveats. In this way the cost of filing a caveat was materially reduced to the inventor.

CAVEAT PROOF OF CONCEPTION.

By the filing of the caveat, the inventor disclosed his invention to the Patent Office, and placed proof in the possession of the Patent Office that the invention belonged to him. In the event of an interference arising, all he had to do was to procure a copy of the caveat and thereby furnish proof of conception and disclosure of the invention.

DIFFICULTY OF PROVING CONCEPTION.

It is ordinarily a difficult thing for an inventor to prove conception of an invention. In some instances, the inventor fails to disclose the invention to any one until after he has completed it, working secretly in his shop or at night and keeping his plans away from every one. As the inventor's testimony is never accepted unless corroborated, it would be impossible in such a case for an inventor to prove his date of conception of the invention: but if during the period of development he had filed a caveat in the Patent Office, it would be easy to establish this point beyond a doubt, for all the evidence he would have to produce would be the certified copy of the caveat filed in the Patent Office.

There are cases in which the inventor may have disclosed his invention to a friend. When the time comes to prove priority, the inventor finds that the friend has gone away, or has forgotten about the disclosure. When he puts the friend on the stand, the latter fails to satisfactorily corroborate the inventor's statement. It is difficult for a person to keep in his mind a clear idea of the disclosure of an invention by some one else, particularly when the person to whom the idea is disclosed has no interest in the matter and does not charge his memory with details.

As proof of conception is essential in an interference case, and in view of the difficulties of establishing conception by the testimony of fallible witnesses, we think that the caveat law should be restored, if for no other reason than to give an opportunity to inventors to prove their conceptions in the manner indicated.

WHY WAS CAVEAT LAW REPEALED?

With all these facts in mind, the question presents itself: why was the caveat law abolished? During the year 1909, there were 1,948 caveats filed in the Patent Office, showing that close to two thousand inventors were inconvenienced and helped by that provision of the law. In recommending the repeal of section 4902 of the Revised Statutes, ex-Commissioner Moore said:

"I also recommend the repeal of section 4902, Revised Statutes, which provides for the filing of caveats in the Patent Office. A caveat is effective for one year, and a fee of \$10 is charged therefor. No real protection is afforded to the inventor. It merely insures notice being given to the caveator for the filing of an application by another for the same invention during the life of the caveat. It is known that many inventors are led to believe that a caveat offers some protection against infringement, which it does not.

The filing of an application for patent and payment of the first fee of \$15 insures an inventor not only all the benefits which he receives by the filing of a caveat, but much more, inasmuch as on the filing of an application for a patent he is placed in interference with any other patent not granted more than two years prior thereto and with any other application for patent which may be on file in the Patent Office or which may thereafter be filed."

Concerning the statement that no real protection is afforded the inventor, we think that what we have pointed out tends to prove the contrary. If an inventor is enabled by the filing of a caveat to prove conception of his invention (a proceeding which ordinarily involves the expenditure of considerable money in taking testimony) it seems to us that this is "real protection." The taking of testimony of witnesses to establish the conception of an invention is costly, whereas a certified copy of a caveat filed in the Patent Office can be obtained for a few dollars. Is not this "real protection?"

As to the argument that inventors are led to believe that a caveat offers protection against infringement, we think that this objection is trivial. As a matter of fact, few inventors have such an absurd idea. The same argument could be made against applications for patents. Many inventors think that by putting "patent applied for" on an article, after an application has been made, affords them protection against infringement. Because an inventor here and there obtained such a wrong impression about a caveat, should the experience of generations as to the wisdom of filing caveats be thrown aside, and inventors be deprived of this form of protection? It is not a serious matter if a few inventors possess such an erroneous idea. The Patent Office through its official publication, the Patent Office Gazette, and in other ways, could educate the inventors as to the importance

of caveats, rather than abolish this form of protection when there seems to be a real need for the same.

While it is true that an application for patent insures an inventor all the benefits which he receives by the filing of a caveat, it should be remembered that an application costs more to file, outside of the government fee. What is more to the point, an application for patent must present an operative construction. Otherwise the Patent Office can reject the application on the ground that it is inoperative, and thereby defeats the purposes of the application and puts an end to the protection afforded the inventor.

THE CAVEAT FOR THE POOR INVENTOR.

Influential inventors, as well as large manufacturing companies, never made use of the caveat law. They can afford to, and usually do, flood the Patent Office with applications for patents. It was the poor inventor who filed the caveat, and we do not think that this privilege should have been taken from him. If it affords no real protection to the inventor, as alleged, it is partly the fault of the Patent Office in not paying greater attention to caveats.

WHAT WAS LOST TO PATENT OFFICE.

The government, in viewing the question from a purely selfish standpoint, should remember that the 1,948 caveats filed during the year 1908 meant the payment of \$19,480 to the Patent Office for caveat protection. There were no examinations made by the Patent Office to determine the novelty of the inventions of the caveats, and it was only required that the Examiner should read the papers and keep the construction in mind while the caveats were in force. It is plain that the filing of caveats was a considerable source of revenue to the government, and involved very little expense. While in some instances caveats may have been overlooked in issuing patents, the same thing may be said of applications for patents. These have also been overlooked by the Patent Office, and patents granted to other inventors on similar devices.

OTHER DIFFERENCES.

The difference between a caveat and an application is further emphasized by the privilege a caveator has of renewing the caveat from year to year by paying \$10 thereon. In order to keep an application for patent alive, the applicant must satisfy the objections of the Patent Office and amend his case within one year from the date of the last official action. If he fails to come up to the demands of the Patent Office in its official action, the application for patent is held to be abandoned.

A PROMINENT CAVEATOR.

It is not generally known that Samuel F. B. Morse, the first and original inventor of the electromagnetic telegraph, took advantage of the provision of the law and filed a caveat on his invention; and in the decision in the celebrated case of O'Rielly v. Morse, a copy of the caveat was filed and made a part of the evidence produced on behalf of Morse to show his conception of the

invention. The caveat was filed in October, 1837, and helped Mr. Morse to successfully maintain his claims.

HOW IT CAN BE RESTORED.

This provision of the patent statute, which had existed from 1836 down to July 1, 1910, was wiped out simply because the poor inventor had no representative in Congress to speak in his behalf. Whether it will ever be restored will depend entirely upon inventors themselves. If there are two thousand men in this country who want to file caveats, (and there were that number who filed caveats in 1909) those men should make an effort through their Congressmen to have the law put back on the statute books.

THE CAVEAT LAWS OF OTHER COUNTRIES.

The patent law of the Dominion of Canada, which is patterned very closely after the patent law of this country, contains a provision for the filing of a caveat. The patent law of Great Britain and that of most of the colonies of Great Britain have what is known as provisional protection, which is in effect caveat protection, but not having the same advantages in that the specification filed under provisional protection in England is printed and published.

THREE ADVANTAGES OF A CAVEAT.

The three advantages of a caveat from our point of view are:

First. It affords an inventor notice of an application for patent for the same invention filed during the life of the caveat.

Second. It may be renewed from year to year and kept alive by the simple payment of the renewal fee.

Third. It affords practically conclusive proof of the conception of the invention by the inventor at the time of filing the caveat.

We hope to see the caveat law again on the statute books. There are undoubtedly a goodly number of inventors who would take advantage of this provision of the law each year, and who miss the absence of caveat protection from the patent law.

Fighting the Burglar.

Readers of stories in which the heroes are criminals are apt to think that the police and detectives have a poor chance against such clever and resourceful examples of their profession as Jimmy Valentine or Raffles. But as a matter of cold fact, the weapons for fighting crime are becoming more and more perfected and effective. Burglars, especially, are finding it increasingly hard to obtain entrance to safes or vaults which have been given modern protection.

In the old days banks used strong brick rooms, with heavy iron doors, bolted and locked. The burglar transformed himself into a locksmith, and picked the locks. Next there was built a vault of steel with double doors. The steel plates resisted the drill, so the burglar took the jimmy. Safes were made stronger, and the burglar took nitroglycerine. And now electricity has been called in to aid the defenders of society. As soon as a safe is closed and the alarm is set, a current of electricity begins shooting around it. Every wire is concealed cleverly, but let a burglar touch one

of them, and the alarm is flashed to a central office. It is estimated that there are in this country today over 100,000 elaborate protective systems of this nature for banks, jewelry merchants and similar establishments, as well as 300,000 smaller systems for private houses, and 2,000,000 minor devices. The electric wire is the most persistent enemy of the burglar.

In the private systems, a big cabinet is fastened to the wall near the bedroom of the man of the house. The lower part of the cabinet shows the names of different parts of the house and is equipped with little arrows. The upper half is a kind of clock, set like an alarm. Wires lead from the cabinet to the door and window springs all over the building, sounding the alarm if one is opened. Another device is called the electric matting. Laid in strips about the house, it awaits the unsuspecting burglar. Or traps may lie for him under rugs, placed before the sideboard in the dining room, or the safe in the library. Another little device is fastened to a window frame like an ordinary catch, but it serves to lock both sashes automatically. Then there is an arrangement that is supposed to prevent the opening of a door. It is an electric bell fastened to a back-piece and tilted at an angle of 45 degrees from floor to door. Slipping across the floor is prevented by a steel guard fastened to the boards. There is a similar guard on the door and against this is poised a telescopic rod. As the door is pushed open, this rod is pushed down and closing the circuit it starts the bell to ringing. With all these devices, what chance has the poor burglar?

Air Harder than Rock.

Dynamite affords a means of proving that there are times when air is harder than rock, and that such times are during the fraction of an instant when the dynamite is exploding. Place some ordinary black gunpowder upon a rock, says the *New York American*, and set it off with a fuse. The result is only a flash and a puff of smoke in the air, while the rock is merely blackened by the flame.

Now place a stick of dynamite upon the same rock and set it off. Instead of flashing into the air as the powder did, it will actually shatter the rock, if even there is nothing about the dynamite to bind it down or retain it.

It is for this reason that the common belief used to be held, and is held by many today, that dynamite, unlike other things, will follow the line of greatest resistance. But this is really not true. The laws of nature are to follow the lines of least resistance, and dynamite does exactly this by crashing through the rock instead of into the air, because for the moment conditions are such that the rock is the line of least resistance, the air about it being harder during that fraction of an instant when the explosion occurs.

The black powder takes fire and explodes much more slowly than the dynamite, so that the elastic air that incloses it, as it does everything, gives way gradually and the force is lost in the atmosphere. With dynamite the explosion has been so sudden, the attack on the air so instantaneous, that for a fraction of a second it actually resists.

The force of the dynamite is so tre-

mendous that it cannot wait, and it is turned into the rock, which, for the instant, becomes the line of least resistance. An illustration of this may be seen during a display of lightning. A fork of it strikes across the sky. It packs the air so densely that it can no longer make rapid progress in that direction, and it turns aside. It cannot wait for the air to yield. It is the same with dynamite.

How the Pyramids Were Built.

Hoisting machines were used in both Assyria and Egypt 6,000 or more years ago. In order to hoist the great stones of the pyramids some form of derrick was employed. Probably the first construction was that which is now known to mechanics as the shear legs. This is made of two great timbers tied together in the form of a capital A, the two ends resting on the ground and a rope being run over and attached to top. With one of these the pyramid builders could have raised large stones step by step, which was doubtless their method.

We can imagine we see the great A frame leaning over an incline of perhaps fifty degrees with a block of stone tied on. Then a great crowd of men get hold of the rope on the opposite side, perhaps assisted by some draft oxen, and all strain and pull until the A frame stands erect and the stone is swung up into the desired place.

The men who built these pyramids certainly had carts and oxen to draw the stones and derricks to hoist them, and the work shows no mean engineering skill. It is surmised that the first carts grew out of the use of rollers made from tree trunks. Having found it a nuisance to keep replacing rollers under heavy objects that had to be removed, the idea of a pair of wheels was devised.

These were formed by simply cutting off two slices or round sections from a large tree and joining them by a rude axle. The ox was hitched in front and a big stone was tied so as to be half separated by the axle, the rear end dragging on the ground. Heavy tree trunks were skidded in much the same way that the work is now done in modern lumber camps.

The pyramid stones often weighed several tons and were sometimes drawn scores of miles from the quarries. They were quarried by sinking holes in the stones with chisels pounded by mauls, and a row of holes was made and wedges driven in to split the stone. The dressing down of the stones was done at the pyramid.

Some of the early pyramids exhibit traces of masonry, showing that the manufacture and use of mortar was then understood. There are also evidences of brick work as early as 3900 B. C. In the Khafra pyramid of this date a trap door of stone closed the sarcophagus, having places for handles and bolts, which, it is believed, were made of copper, although they had disappeared when modern researches were made.

The men of the pyramid age not only knew how to make bricks, tiles, and vessels of clay, but they had learned to fire the clay in such a way as to vitrify or glaze the surface, rendering it more ornamental as well as less porous. This was the beginning or basis of china or porcelain manufacture.

A CLASSIFIED list of Patents issued during the month appears in each issue of the INVENTIVE AGE. This keeps inventors and manufacturers posted in the art in which they are most interested.—We will send, postpaid, to any address, printed copies of any U. S. patent, with specifications and drawings, upon receipt of 10 cents per copy.—Please give correct data in ordering.—Address,

THE INVENTIVE AGE PUBLISHING CO., 918 F St., N. W., Washington, D. C.

LIST OF PATENTS

—:o:—

Issued September 23, 1913.

MECHANICAL PATENTS.

(Continued from December Number)

Operating table for animals. W. B. Higgason
Ore concentrator. M. L. Porter
Ore separator, Electromagnetic. G. Reikotter
Padlock, Permutation. J. T. B. Williams
Paper cups, Machine for making crimped. H. Muller
Pavement. C. P. Walter
Pencil sharpener. F. Unruh
Pharmaceutical compound. W. Hiemenz et al.
Pharmaceutical product. L. Taub
Photographic lens. W. Bielickie
Photographic objective. E. Wandersleb
Piano attachment. I. Traversaro
Piano or other string instrument. F. Frankel
Piano player, Pneumatic-electric. G. Beuchner et al.
Pick-up table and postmarking machine. J. T. Lynch
Pile splice. W. A. McDermid
Pin. C. F. Markham
Planter. N. C. Cross
Planter, Corn. C. W. Gillespie
Planter, Corn. G. E. Parker et al.
Plow. W. E. Huck
Plow, Disk. H. C. Waite
Plow lift, Mechanical. F. J. Savage
Plow subsoil attachment. W. F. Hartig
Plows, Detachable shoe for landslides of. W. H. Lee
Plug fitting, Attachment. P. V. Burton
Pneumatic-dispatch-tube apparatus. A. W. Pearsall
Post-hole machine. B. C. Roberts
Power press. J. Wilson
Preserving organic substances, Apparatus for. W. L. Smith
Pressure gage. H. and G. Buttress
Printer's quoin. J. T. Barton
Printer's type and furniture. A. P. Brooks
Printing composition and preparing the same. M. R. Swope
Printing machine. C. L. Moon et al.
Printing-press feed gage. B. McGinty
Printing presses, Inking mechanism for bed-and-cylinder. H. M. Barber
Protector. G. C. Ludgate
Pull-rod clamp. D. D. Neville
Pulverizing coal and other materials, Apparatus for. C. A. Bettington
Pump, Air. F. K. Hohenstein et al.
Pump governors, Piston for oil. C. W. Shinton
Radial drill, portable or on wheels, Universal. A. Engelhard
Radiator foot rest. E. B. Bower
Radiator heat. A. B. Neiman
Rail fastener. R. C. Morrow
Rail-supporting bed. F. W. Lawson
Railway crossing. T. M. Hughes
Railway intersection (2 pats.). E. S. Cobb
Railway rails, Making. A. H. Moore
Railway tie. A. A. Gaswell
Railway tie. G. S. Myers
Railway tie and clamp, Combination. J. T. McGonigal
Railway tie, Metallic. W. H. Proctor
Rake. D. R. McClure, Jr.
Razor-stropping machine. E. B. Gifford et al.
Reflector, Light. O. Shiras et al.
Refreshment table. O. C. Kade
Regenerator. A. Jensen
Register. J. G. Cary
Repair tool. B. V. Maxwell et al.
Resilient wheel. J. Pronovost et al.
Rope elevator. M. E. Neenan
Rope-fitting, Metallic. B. H. Trewella
Sad iron. L. Rosenbaum
Sad iron. J. F. Lamb et al.
Sand blast, Closed-hopper. G. F. Steedman
Sash, Glass holder for metal. W. R. Kinnear
Sash holder, Window. W. M. Dight
Sash holder, Window. C. W. Cook
Sash pivot mechanism, Deck. F. Conrad
Saw gage. H. Duesen
Saw swage. C. L. Olsen
Scaffold. S. Pichler
School seat and desk. J. M. Stubblefield
Screen-plate holder. H. E. Spring
Seal lock. O. E. Sharp
Sectional tank. G. Sillman
Seeding machine. F. E. Davis
Semaphore signal. L. A. Hawkins
Separable key. M. W. Wiard
Separating table and process of separation. H. M. Sutton et al.
Separation of comminuted materials, Process of and apparatus for progressive electrostatic. H. M. Sutton
Sewing-machine hemmer. J. Holtzmann
Shade and curtain hanger. J. W. Awald
Shaft brace, Buggy. J. H. Brunken
Shaft-coupling, Flexible. C. V. Kerr
Ships, Registering the course and speed of. J. Wlodzimierski
Shock loader. O. J. Gilliland
Shutter worker. R. Kirchhoff
Siemens-Martin furnace. K. Albert
Signaling, Means for selective. I. F. Manny
Slicing device, Butter. B. Iitsuka
Slip-cover can. W. L. Laskey
Soap holder, Shaving. T. G. Morgan
Soda fountains, Metallic structure for. F. T. Wiechert
Sound box. A. C. J. Constabel
Spark plug. J. W. Nance
Spike. M. Lundin
Sprayer, Tree. F. G. Hayes

Spraying machine, Orchard. F. C. Thompson
Stake pocket, Hinged. R. P. Borge
Steam shovel. T. Schock
Steam trap. G. N. Graham
Steering gear, Marine. L. C. Burns
Stool or chair, Metallic. S. D. Leland
Stop mechanism. D. M. Cooper
Stop mechanism for machinery (2 pats.). D. M. Cooper
Strainer and muffler, Self-cleaning. B. S. Aikman
Superheater for water-tube boilers. W. Schmidt et al.
Superheater, Steam. A. Bolton
Suspensers. W. Heinmiller
Suspension clamp. G. H. Bolus
Synchronous machines, Means for controlling. J. Burke
Table. F. B. Kleintob
Talking machine. H. B. Babson et al.
Telegaph receiving and sending apparatus, Automatic change-over switch for wireless. W. L. Lewis
Telegraphy. W. M. Bruce, Jr.
Telegraphy, Breaking means for radio. E. N. Pickerrill
Telephone-exchange system. S. H. Browne
Telephone operators' positions, System for dividing calls among. H. J. W. Fay et al.
Telephone outfit for the deaf. K. M. Turner
Telephone-receiver holder. H. C. Raiber
Telephone transmitter. H. C. Egerton
Thermostat. E. S. Halsey
Threads, bands and filaments, Manufacturing artificial lustrous. F. Dietler
Ticket, Pinless marking. G. A. Wallin
Time recorder. J. Sokolov
Time switch. S. I. Phelps
Tines, Metallic belt protector for vehicle. W. P. Hammond
Toaster and broiler. J. M. Brock
Tobacco-stemming machine. H. C. Hebig
Tongs, Adjustable casing. W. S. Brummett
Tongue for farm implements. G. M. Schnell
Tool handle. D. D. Peters
Tool holder. H. Haussman
Tool holder. D. M. Bilby
Tooth powder. R. Yeganian
Toy. G. F. Voltz
Train-coach attachment. W. E. Cook
Trains or moving bodies, Apparatus for delivering articles, such as mail bags, from. M. D. Van Lenten
Transplanting machine, Plant. R. L. Owens
Trial frame. G. L. Tully
Truck. J. E. Muhlfeld
Truck-bolster-damping device (3 pats.). W. G. Price
Truck, Car. J. C. Barber
Truck-counting apparatus, Loaded. R. McGahey
Truck for forming and depositing shocks. G. Marshall
Tumbling barrel. F. E. Warner
Turbine blade, Steam. A. B. Owen et al.
Turbine, Gas. A. E. Stachel
Turbine, Marine. F. Fritz
Turbine, Steam. F. Ljungstrom
Type-writing machine. J. Purdy
Type-writing machine. E. B. Hess
Type-writing machine, Music. L. Fortoni
Umbrella covers, Fabric for. D. R. Houser
Umbrellas and the like in closed position, Means for retaining the ends of the ribs of. A. A. Revel
Undergarment. C. F. Schultz
Undergarment, Lady's negligee. V. Whittington
Union suit, Separable. W. W. Wyer
Valve for water closets, Flush. H. P. Hansen
Valve gear for internal-combustion motors, Starting. J. Romeyn
Valve, grinding tool. H. B. and P. Horn
Valve-operating mechanism for internal combustion engines. J. M. White
Valves of gas burners, Device for controlling. A. B. Shaw
Valved coupling. J. N. Timmer
Vehicle. J. E. Wright
Vehicle folding tops, Appliance for adjusting. W. J. Hutchinson
Vehicle spring equalizer. G. M. Hinton
Vehicle spring, Pneumatic. T. L. de Bepjar et al.
Vehicle suspension. R. F. Cordero
Vehicle suspension, Front. R. F. Cordero
Vehicle track and curbstone, Combination. F. F. Fargo
Vehicle wheel. J. F. Mitchell
Ventilating and for moistening the atmosphere of premises, Arrangement for. J. F. P. Kestner et al.
Vessel with metallic end closure, Double-walled. J. W. Harrison
Vessels, Apparatus for the salvage of. M. L. Johnson
Vise Pipe. C. O. Bergman
Wagon. J. B. Bartholomew
Wagon brake. B. Gussette
Wagon hounds. R. F. Clifton
Wall structure. G. A. Wieland et al.
Washing-machine-driving mechanism. O. H. Watkins
Water heater. I. Jensen
Water-saving system. J. G. MacDonald et al.
Water wheel. K. D. Smith
Waterproof garments, Reinforcing seams of. S. Kaufman
Wave motor. J. H. Henderson
Wave power, Apparatus for utilizing. A. W. Melander
Weed-destroying machine. J. R. Roe
Well point, Drive. O. W. Andrews
Wells, Device for removing casings from drilled. N. Beaumont
Wheel brake, Vehicle front. J. H. Campbell
Whip socket, Self-locking. C. R. Dinges

Wheel guard for deflecting objects from the track. W. C. Curran
Winding machine, Fabric. D. Bain
Windmill. J. Partain
Window. C. F. Schneider et al.
Window. T. Schulz
Window. J. M. Campana
Wire stretcher. P. Filiez
Wringer support and fastener. W. P. Bancroft
Yoke, Neck. J. A. Koyen
Yoke, Neck. O. Townner

Issued September 30, 1913.

MECHANICAL PATENTS.

Acid, High concentration of watery nitric. H. Pauling
Aerial control system. E. F. Gallaudet
Aerial flights, Machine for. N. J. Paddock
Aerial navigation, Apparatus for. G. Mitchell
Aerial navigation, Apparatus for. M. Pearson
Aeroplane-control system. E. F. Gallaudet
Aeroplane shock absorber. W. N. Ensign
Agricultural implement. C. Christensen
Agricultural implement, safety guard. A. Pohl
Air and gas mixer. E. C. Jones
Air coupling, Automatic. F. N. Fisher
Air-oxygenating apparatus. H. W. Izod
Alloy, Copper. W. F. Nolen
Alloy, Zinc. T. A. Bayliss
Amalgamator. L. O. Crocker
Auger, Earth. D. Wilson
Automobile horn. R. H. Manson
Automobile lock. A. A. Bennett
Bag-tying machine. J. P. Curry
Ballast cleaner. W. I. Trench et al.
Bank-note tester. I. De Dragits
Bean and pea hullers, Auxiliary cleaning means for. L. S. Whiting et al.
Bearings, Device for assembling ball. H. B. Whitney
Beating and mixing machine. A. C. Westby
Bed. J. A. Brown
Bed, Sofa. M. J. Bartlett
Bed Wall. R. H. Anderson
Belt tightener. L. A. Tirrill
Billiard and pool tables, Cushion strip for. J. J. Medvec
Binder, Leaf. L. Kingsley
Boilers, Column for steam. H. H. Cross et al.
Bolt-turning machine. R. F. Scott
Book, Renewable leaf. P. MacMaster
Boot and shoe-fitting device. J. Borel et al.
Boot or shoe. J. B. MacLaughlin
Boot protector. F. Nussbaumer
Boring machine. F. W. Gerding
Bottle cap and pourer. A. Feinstein
Bottle-filling machine. J. H. Champ
Bottle, Non-refillable. C. Wilcoyitz
Bottle or bag, Water. I. F. Kepler
Bottle stopper. A. Rochwite
Bottles, jars, and other vessels, Fastener for. J. A. Jones
Bracket holder for flower vases. S. D. R. Braun
Brake shoe, Composition-filled. H. Jones
Brake shoes, Back for. G. Cook
Bread-mixer cabinet. E. J. Sammis
Brush, Fountain blacking. M. W. Nelson
Brush-making machines, Bristle-feeding attachment for. K. Winkler
Brush receptacle, Antiseptic tooth. E. Fowler
Brush, Shaving. M. Jacobs
Brush, Shaving. W. J. Duncan
Bucket. M. C. Kersey
Buckle, Harness. E. Humphreys
Building construction. C. P. Pond
Building ventilator. T. E. Vaughn et al.
Burner. A. Beler
Cableway. E. D. Swan
Calculating register. A. G. Black
Calipers, Attachment for micrometer. G. P. Kline
Can-cover fastener, Milk. J. P. Anderson
Can-head-feed mechanism. A. Johnson
Caoutchouc substance. F. Hofmann et al.
Cap-making and bottling machine. F. Muller
Car body and underframe construction. O. S. Pulliam
Car-brake slack adjuster. W. S. O'Brien
Car door, Grain. A. G. Olson et al.
Car ends, Attaching means for. W. T. Van Horn
Car, Hand. N. Nelson
Car roof. N. L. Frieze
Car wheel, Mine. H. A. Holzer
Cars, Hood of motor. A. Annmuller
Carbon, Regenerating of decolorizing. A. Wijnberg
Carburetor (2 pats.). E. A. Riette
Carburetor. E. S. Smith
Carriage, Child's. J. W. R. Andrews
Carrier. J. L. Riley
Casting apparatus. W. H. Connell
Chimney-flue reverser. S. S. Covert
Chuck, Power-operated. W. L. Miller
Cigar lighter and pencil-point protector, Combined. F. McIntyre
Cigarette case. J. W. H. Pattison
Circuit closer, Thermostatic. C. V. Fite
Circuit-controlling contact. E. M. Hewlett
Clam digger. J. Schoos
Classifier for solid material. R. E. Trotter
Clock. W. B. Rikard
Clock, Alarm. G. J. Jaccard
Clock, Switch. W. H. Mellor et al.
Clothes-line fastener. J. R. and P. Kooi
Clothes pounder. R. E. Beaubien
Clutch construction. P. Evans
Cocks, valves, and the like from a distance, Means for operating. J. M. F. H. Gill
Coin-controlled device, Electric. F. E. Dodge et al.

Colophony and colophony soap, Making. J. Aktschourin
Coloring matter, Azo. O. Gunther
Compression table and system of operation for the same. S. T. Hutton
Computing device. A. H. C. Hornbostel et al.
Concrete arch. C. D. Kelly et al.
Concrete socket pile. K. D. MacLeau
Condenser, Electrolytic. C. I. Zimmermann
Controller regulator. R. Marx
Controlling mechanism. R. Davis
Conveyer. N. P. Jorgeson
Conveyer and spiral chute, Combined tray. M. C. Schwab
Copy holder. R. A. Hill
Cotton chopper. W. A. Crow
Cotton gin, Roller. S. D. Shepperd
Cotton gins, Comb roll for roller. S. D. Shepperd
Crate Resilient fruit. I. Hill
Cream cooler. J. O. Hoehner
Cruppers, Machine for stuffing. J. B. Bastian
Cultivator. L. Kanyo
Cultivator and plow attachment. A. W. Daniels
Cultivator attachment. W. F. Boud
Cultivator forms, Concrete. G. W. Countryman
Current motor, Alternating. H. L. Zabriskie
Curtain pole. A. M. Clark
Curtain pole. S. Kay
Cuspidor. A. C. Murdock
Cycle seat, Motor. F. G. Kimpel
Dam for irrigating ditches, Folding (Re-issue). W. A. Linkletter
Dark room, Folding. J. Masko
Delivery receptacle. L. T. La Paugh
Dental instrument (Reissue). J. L. Kelly
Denture, Artificial. E. C. Bennett
Detergent. M. Colvin
Dispensing device. E. Riordan
Display board. H. Detrick
Display device for casket handles. L. T. Butler
Door check. J. K. Young
Door fastener. R. Y. Hughes et al.
Door mat, tread, and the like. G. Cummings
Door securer. H. R. Wiseman
Douch cup, Vaginal. M. H. Kutch
Dowel gluing and driving machine. E. G. Bell et al.
Drainer, Dish. E. G. Hines
Draining device, Automatic. E. Winarsky
Drier kiln. F. W. Ballard
Drying and heating apparatus. C. A. Mullen
Drying system. C. R. Walker
Drills, Automatic feed for percussive. C. C. Hanseu
Driving pinion support. A. W. Wessoleck
Dye, Vat. W. Bauer et al.
Dyeing thread and like material, Apparatus for. B. Teufer
Egg carrier. E. A. Dieterich
Egg separator. G. S. Martin
Electric apparatus, Vapor. A. M. Jackson
Electric apparatus, Vapor. J. T. H. Dempster
Electric machine, Dynamo. C. E. F. Ahlm
Electric oscillograph. J. T. Irwin
Electric switch, Combination. Y. Burgess
Electrical connector. H. W. Pogue
Electrical illumination. E. Weintraub
Electrically-heated pad and the like. J. G. Schuirmann
Electrode, Therapeutic. R. H. Wappler
Electrolytes, Apparatus for fusing. H. R. Carveth
Electrolytic apparatus. H. Henkel et al.
Electrothermostatic regulator. J. G. Schuirmann
Embroidering machines, Jacquard mechanism for. R. Zahn
End wrench. D. M. Brumfiel et al.
Engines, Device for automatically stopping gasoline. T. E. Johnson
Engines, Magneto-electric ignition apparatus for use with internal-combustion. C. Ebner
Evaporation, Separating solid substances from solutions by. G. Jensen et al.
Excavating, elevating, and dumping earth, sand, silt or gravel, Machine for. W. Castles
Excavating machine. A. D. Ward
Excavating shovel. T. Alexander
Explosive nitro bodies, Densifying fusible. G. Issler
Eyeglass mounting. G. A. Bader
Eyeletting machine with automatic feed. I. Cohen et al.
Fabric-piling mechanism. H. L. Gantt
Fan. C. Wysocki
Farm gate. J. M. Spittler
Farming implement. C. Harris
Faucet, Antiscald. J. R. Boutell
Feed-water controller for boilers, Safety. F. Wallace et al.
Feeder, Calf. C. D. Davis
Fence stretcher, Wire. W. H. and T. A. Mears
Fibers and the like, Automatic feed for. M. E. Ryan
Finish removers, Making. J. M. Wilson
Fire escape, Portable. H. Chiariglione et al.
Fire-extinguishing apparatus. G. J. Contu
Fire, Means for releasing the fastenings of metallic parts in case of. E. H. McCloud
Fireproof and elastic material, Producing a. N. Magelssen
Flash light. A. J. Dupont
Flat irons, Automatic temperature control for self-heating. E. Rund
Flush tanks, Stop or buffer for. S. S. Crocker
Flushing tank. E. P. Stary
Flying machine. M. A. Parisano
Food product. M. Wolf et al.
Fruit-pitting machine. E. A. Vary
Fuel mixer, Gaseous. W. S. Parker
Funnel for liquids, Self-closing. K. H. Rosenauer
Furnace-charging door. H. N. Leask

- Fuse J. W. Hooley
 Fuse device A. E. Simmons
 Game apparatus J. S. O'Reilly
 Garment fastener M. A. Willbrandt
 Garter F. G. Eiker
 Gas burners, Automatic shut-off for C. H. Schenk
 Gas-burning apparatus P. Fyfe
 Gas-controller, Safety S. L. Neely et al.
 Gas-fitting, Detachable R. Behr
 Gas heater W. Collins
 Gases, Composition for purifying P. J. Granjon
 Gear mechanism, Intermittent L. J. R. Holst
 Gearing J. C. Thompson
 Glass turnaces, Means for maintaining a constant working level in A. L. Day
 Glass-grinding apparatus, Truing mechanism for R. C. Beatty
 Glass, Machine for finishing the edges of plate G. M. Tremmel
 Glove fingers, Hood for R. N. Carson
 Grease cup J. Rank
 Grinding apparatus, Wood F. A. Waldron
 Grinding mill H. C. Strack
 Hammers, Spring clip for pneumatic J. F. Eischeid
 Harrow and cultivator, Riding W. W. McArthur
 Hat-pin guard E. H. Mantle
 Hat-pin-point protector W. Gramacki
 Hay carrier D. D. Miller et al.
 Hay sling H. Morgen
 Headlight control for automobiles H. W. Potts
 Heater (2 pats.) W. F. Pascoe, Jr.
 Heating and illuminating burner, Combined M. L. Packer
 Heating furnace A. Glass
 Heel-nailing machine, Shoe J. F. Salaba
 Horse detacher C. B. Smith
 Horseshoe W. Rakowski et al.
 Horseshoe E. G. Donnelly
 Horseshoe calk and carrier P. Nurse
 Hose-coupling T. Carence et al.
 Hose coupling C. Giovannoni
 Hydraulic-power system A. L. Reynolds
 Hydrocarbons of the benzene series, Reduction of metanito derivatives of B. J. Flurscheim
 Ice clipper A. M. Wood
 Ice-making apparatus Z. U. Dodge
 Igniter E. C. Jones
 Ignition system, Magneto J. M. Dinkins et al.
 Ingot-manufacturing apparatus W. H. Connell
 Ingots, Manufacture of (2 pats.) W. H. Connell
 Iron, steel and steel alloys, Case-hardening articles of F. Giolitti
 Ironing board, Cabinet M. C. Walter
 Ironing table, Tailor's and laundry J. C. Ostern
 Journal box with independent supporting and pulling rollers, Car-axle E. W. Gragert
 Key attachment A. M. Heimbaugh
 Keying device J. C. Beach
 Knee joint, Artificial C. A. Aunger
 Knee pad W. Schmitt
 Ladder, Step B. C. Freas
 Lamp J. Maier
 Lamp D. D. Myer
 Lamp-adjusting mechanism N. Maxfield
 Lamp, Electric pocket (2 pats.) E. Neudorffer
 Lamp glower, Electrical incandescent O. M. Thowless
 Lamp, Inverted hydrocarbon J. F. Lawrence
 Lantern bracket for vehicles J. P. Kline
 Lap robe G. Sullivan
 Latch F. C. Altmann
 Latch and lock, Gate T. L. Johnson
 Lathe, Turret J. C. Potter et al.
 Lawn sprinkler E. Wismar
 Leather-staking machine P. Bohacek
 Levee J. Beazley, Sr.
 Level and gauge, Combined G. M. Keefauver
 Lightning arrester F. W. Peek, Jr.
 Line-casting machine P. T. Dodge
 Liquid-fuel burner H. Izard
 Lock J. Potapoff
 Lock F. M. Doughty
 Locks, Latch mechanism for W. A. Russell et al.
 Locking mechanism W. K. Howe
 Locomotive and tender couplings, Buffer for T. L. McKeen
 Loom, Weft-replenishing E. H. Ryon
 Lubricator J. F. McCanna
 Magnetic material R. A. Fessenden
 Manometer, Differential F. E. Wolf
 Materials, Treating F. W. Yost
 Measuring device, Automatic liquid F. Schorik et al.
 Mesh bag E. Beline
 Metal structure W. L. Caldwell
 Metal-working apparatus, Electric A. F. Rietzel
 Metals from ores, Apparatus for extracting H. S. Mackay
 Metallic box R. H. Baker
 Mica-building machine J. R. Sanborn
 Microtelephone W. B. Oliver
 Milk, Producing, dessicated A. A. Dunham
 Milk, Sterilizing C. de Bock
 Milking apparatus G. V. Roberts, Jr.
 Milk adapted for the crushing of sugar canes and the like F. W. Bolk
 Mixing machine G. M. Stedman
 Mold A. Schlicht
 Molding machine A. C. Mott
 Motor regulation and control, Electric L. H. Thullen et al.
 Motor-stopping device A. F. W. Schlueter
 Motors, Operating induction B. G. Lamme
 Musical instrument with interchangeable necks, Stringed S. Pileri
 Musical instruments, Device for recording the tone volumes on P. J. Meahl
 Musical instruments, Tracker bar for self-playing P. Wirsching
 Net J. F. Masek
 Newspaper stand T. C. Schepis et al.
 Non-explosive stopper for bottles containing liquid fuels A. Mueller
 Nut lock I. M. Peck
 Nut lock G. Klenk
 Oil-rake-stripping machine T. J. McNulty
 Oil can H. L. Larsen
 Ordnance, Recoil and run-out gear of A. T. Dawson et al.
 Ordnance, Run-out gear of heavy A. T. Dawson et al.
 Ores, Apparatus for the treatment of G. Mitchell
 Organs, Air regulator for P. O. Boeske
 Ovens, Coal-leveling machine for beehive J. H. Huhn
 Ozone and separating gases, Producing H. Dumars
 Ozonizer F. H. Richards
 Paper-bag machine C. F. Smith
 Paper-feeding machine A. D. Pejano
 Pear burner J. J. Messerli et al.
 Peat, slime, and like substances, Treating G. Wolters
 Pedal, Folding (2 pats.) E. Swanson
 Percussive tool, Rotary C. H. Haeseler
 Petticoat E. Eschelbacher
 Photograph-developing apparatus F. W. Norton
 Piano-action-flange holder H. D. Pelle
 Piano-playing mechanism B. R. Van Valkenburg
 Piaselenol, Derivative of E. Fischer
 Picture machines, Film-tensioning device for moving C. Hunton et al.
 Pictures, Apparatus for the production of stereoscopic H. Neuhaus
 Pin C. G. King
 Pipe anchor C. E. Frederickson
 Pipe construction J. W. Welch
 Pipe-cutting machine W. W. Vosper
 Planter S. V. Brock
 Plow attachment E. B. Evenson
 Plow, Motor L. S. Hackney
 Plow, Subsoil J. A. Huggins
 Plows, Combination soil pulverizer and seeder attachment for G. F. Rowley
 Porch, Sleeping E. R. Culver
 Power-producing apparatus S. B. Roy
 Pressure-alarm gauge F. Schubert
 Printing T. S. Fox
 Printing-plate holder and registering clamp E. M. Erb
 Processing apparatus H. L. Gantt
 Projectile E. Gathmann
 Propeller, Ship L. Maublane et al.
 Pulley, Expandable J. H. McGlynn
 Pnmp, Air-charging and priming device for suction J. Astrom
 Pump governor, Double-pressure W. V. Turner
 Pnmp, Rotary I. J. Johnson
 Puzzle or toy E. J. Schowalter
 Rail clamp J. P. Braden et al.
 Rail drill L. W. Morton
 Rail-drill drive and frame therefor L. W. Morton
 Rail joint J. Mico et al.
 Rail joint H. A. Palmer
 Rail joint J. E. McCoy
 Rail-joint support A. G. Smith
 Railway construction W. H. Morgan
 Railway draft rigging W. H. Miner
 Railway draft-rigging A. Campbell
 Railway frog J. V. Stewart
 Railway, Pleasure H. A. Lockwood
 Rawhide and the product resulting therefrom, Treating A. H. Henderson
 Razor, Safety D. E. Lochman
 Razor, Safety A. G. Wormser
 Reflector, Optical F. M. Walts
 Refrigerator W. E. Park
 Refuse destructor H. N. Leask
 Retort C. B. and M. Darrin
 Riveter F. J. West et al.
 Road-surfacing composition for surfacing roads, driveways, and sidewalks R. Muh et al.
 Rolling mills, Screw-down for W. F. Rust et al.
 Roofing, Composite W. L. Barnhart
 Rope protector, Bull P. A. Schmuuck
 Sad irons, Cleaning and waxing pad for J. A. Sumner
 Safety article holder B. A. Kusserow
 Salts from solutions containing them, Deposition of metallic H. Rees et al.
 Sash pivot and latch, Deck A. W. L. Hartbauer
 Saw-filing and setting frame C. Oestreich
 Saw guard F. V. Phillips
 Sawmill, Band G. M. Pelton
 Sawmill carriages, Wheel guard for W. T. Campen
 Scale, Measuring J. A. Kincaid
 Scale, Weighing B. D. Emanuel
 Scoop C. E. Skym
 Scraper, Wheeled T. B. Ferguson
 Screw plate C. C. Russell
 Sealing means for vaults F. E. Arndt
 Seasoning machine T. Dawson
 Sewed articles, Seam for W. B. Tyrrell
 Sewing-machine shade E. Koller
 Sewing machines, Scallop-trimming device for A. Ort
 Sharpener, Knife G. G. Ross
 Sharpener, Lawn mower M. Johansen
 Sharpening machine or tool, Saw H. R. Roberts
 Sheet-feeding machine B. R. Stickney
 Shelf box E. H. Bekkney
 Shingling bracket H. Richards
 Ship-stopping device C. Behrens
 Shoe fastener W. H. Powell
 Sign M. Brunet et al.
 Signs, Making N. A. Rachliss
 Signaling device L. Abeles
 Signaling system, Space H. F. Perkins
 Signaling, Wireless R. A. Fessenden
 Slime-dewatering gravity device I. F. Monell
 Small arm R. H. Quisling
 Snap fastener E. Colegate
 Solar heater F. A. Skiff
 Solutions applied to kid, leather, &c., Drying G. W. Bernauer
 Spike H. O. Crippen
 Spinning machines, Forming drawing rolls for E. Kempshall
 Spinning roll (3 pats.) E. Kempshall
 Sponge, Hygienic textile H. Casevitz
 Spoon attachment J. W. Lundahl
 Spring F. G. Winkler
 Spring roller E. H. McCloud
 Spring tightener L. M. Mengle et al.
 Spring wheel R. C. Behrends
 Spring wheel S. J. Poyner
 Stamps, labels, or sealing strips, Drying apparatus for G. W. Gwinn
 Stapling machines, Work feed for W. Osterholm
 Station indicator V. M. Piechocinski
 Stay, Garment D. Schuler
 Stirrup, Safety W. L. Ward
 Stoker, Underfeed W. C. A. Henry
 Stool, Music W. S. McLennan
 Stuffing box W. A. Gordon
 Sulky, Collapsible R. H. Brown
 Superheater, Steam P. Thomsen
 Supporter W. B. Whitlock
 Suture appliance, H. C. and J. E. De Bann
 Swaging machine F. V. Whyland
 Switch stand, Ground J. V. Stewart
 Switch-tongue fastening H. G. Isenberg
 Telegraphic system J. Gell
 Telegraphic systems, Receiver for automatic J. Gell
 Telephone repeater system H. E. Shreeve
 Temperature indicators, Device for projecting the images of G. M. Guerrant
 Thermostatic regulator C. H. Stenberg
 Thread stand J. Maitland
 Ticket holder M. J. Burke
 Tie plate and rail fastener M. Schroyer
 Tile machine M. E. Shaw
 Tire, Sand G. F. Thompson
 Tire, Vehicle J. T. Clark
 Tobacco pipe T. Broz
 Tool-chest handle J. Neustaedter
 Tool, Combination G. W. Gilmer, Jr.
 Tool, Combination W. Pearson
 Top-comb cleaner E. A. Rooney
 Track sander W. B. Rogers
 Traps, Treadle guard for spring jaw L. L. Rudnd
 Trash arrester and filter W. H. Miller
 Troweling compound, Plastic waterproof A. C. Horn
 Truck, Car W. H. Beulings, Jr.
 Truck, Car G. C. Towle
 Truck construction, Car W. M. Duncan
 Truck, Locomotive H. F. Ball
 Turbine, Steam F. Ljungstrom
 Type-composing and casting apparatus H. J. S. Gilbert-Stringer et al.
 Union suit F. L. Barnes et al.
 Valve J. W. Abbott
 Valve, Flush A. N. Pasman
 Valve, Gate E. F. Poland
 Valve gear, Locomotive reversing J. Henderson
 Valve-mechanism for explosion engines W. D. Kelly
 Valve seat J. H. Mixer
 Vehicle brake H. C. Washburn
 Vehicle braking mechanism (Reissue) T. V. Beckwalter
 Vehicle rub iron G. Schubert
 Vehicle spring L. A. Huston
 Vehicle storm curtain C. Sedlacek
 Vehicles, Gas tank holder for motor G. W. Dunham
 Vehicles, Gearing for motor E. H. Avery
 Vending machine, Check-controlled N. P. Fraser
 Voting machine J. H. Deau
 Voting machines, Counter actuator and voter counter for C. Christensen
 Wagon bed J. L. Sweeney
 Wagon jack W. M. Lewis
 Washing boiler J. E. Rowan et al.
 Washline hanger E. Haupt
 Watch-dial-fastening device W. B. Miller
 Watch guard, Safety R. Fischer
 Water connection L. J. Halzapfel
 Weeding machine J. M. Shafer
 Weighing machine S. D. Kinne
 Window and door screen C. H. Zimmerman
 Window-jamb machine J. E. Eisele
 Window lock A. Carrette
 Window screen F. McLaughlin
 Wire stitcher H. Weber
 Wire-stretcher attachment H. M. Kyle
 Wrench I. M. Waldron
 Wrench D. Dahlberg
 Wrench E. P. Gummo
 Issued October 7, 1913.
 MECHANICAL PATENTS.
 Accordions, Octave coupler for J. Galleazzi
 Accounting appliance, Credit H. E. Massey
 Acetylene generator E. R. Angell
 Acid, Esters of dialkylaminoformic G. Merling et al.
 Acid, Making lactic O. Friedberger
 Acid, Manufacture of 2-phenylquinolin-4-carboxylic A. Thiele et al.
 Acids and making the same, Arsinic L. Ach et al.
 Adding machine G. S. Bollensen
 Adding machines, Keyboard-locking mechanism for J. P. Hunter et al.
 Adjustable gate J. E. Van Deventer et al.
 Adornment, Article of A. H. Merrill
 Advertising device F. V. Burton
 Advertising device, Illuminable F. J. Weber
 Aeroplanes, Automatic balance for L. Spiro
 Air brake R. D. Buswell
 Air-conditioning apparatus S. W. Cramer et al.
 Airships, Suspension of the cars of E. Blochmann
 Alcohol, Apparatus for making diacetone C. W. Crockett
 Alkali chlorides, Apparatus for electrolysis of fused E. Steinbuch
 Ammunition for rides, Magazine for miniature E. J. Hiscock
 Animal trap J. Heberling
 Animal trap S. Wiehl
 Apron, Preventive intercourse S. Wiehl
 Archery, Table J. Morrison, Jr.
 Automobile cut-out R. T. Whipple
 Automobile jack W. C. Bouldin
 Automobile marker bracket D. H. Cox
 Automobile wind shield G. B. Collier
 Automobiles, Chain-casing for H. C. Heath
 Ax, Folding C. H. Winship

- Clutch release, Automatic D. C. McCan
Coasting device D. Gingold
Collar, Horse E. Mathis
Comb F. Pearce
Combining machine J. Good
Compass, Gyroscope T. Bruger
Composing machine, Typographical P. T. Dodge
Composing machine, Typographical J. R. Rogers
Composing machine, Typographical R. O. Boardman
Compressor, Centrifugal S. A. Moss
Concrete floor construction J. Kahn
Concrete floor, Reinforced (2 pats.) G. M. Graham
Concrete mixer E. E. Willis
Concrete mixer T. Ahlborn
Concrete pole, Reinforced H. S. Stout
Confectionery mold T. E. Breyer
Cooking utensil E. Schmid
Core box J. W. L. Kerr et al.
Corner-post fastener E. H. Woelfel
Corset fastener W. J. McLean
Corset-stap-clip protector A. E. Powers
Cot, Folding M. S. Karpen
Cotton picker O. C. Houghton
Couch, bed, &c., Combination A. G. Eyles
Coupling device, Differential J. H. Deming
Crushing or pulverizing materials C. Dietz et al.
Cultivator H. C. Howell
Cultivator J. B. Denham et al.
Cultivator attachment J. E. Moody
Cultivator attachment, Riding W. O. Creek
Cultivator, Tobacco J. M. Harned
Culvert R. B. Hibbs
Curtain fastener, Vestibule W. R. Geesey
Curtain pole and hanger W. J. Zietlow
Curtain-rod holder W. W. Walsh
Cushion retainer, Seat (2 pats.) W. R. Smith
Cuspidor D. M. Hayworth et al.
Cutter and slicer S. W. Massey
Cutter guard P. Erickson
Cutter head F. Cartledge
Cutter-setting dial A. L. De Leeuw
Cutting apparatus D. N. Prime
Cycle explosion-motor, Two-stroke F. Pilain
Dam T. H. Skinner
Damper and drifting valve, Automatic combined H. B. Oatley
Davenport, Folding G. W. Henry
Dead-fall trap S. Wiehl
Dead lock, Automatic-locking A. C. O'Brien et al.
Defibrating machine A. P. O'Brien et al.
Deflector T. T. Peddy
Die head, Screw-cutting H. L. Fisher
Die stock, Geared H. W. Oster
Diethyl sulphate, Manufacture of L. Lilienfeld
Dishes, Appliance to facilitate the washing and drying of R. W. Dickenson
Disinfecting apparatus F. J. Smith
Disk drill and harrow, Combined H. C. Howe
Dispensing can H. W. J. Gruettner
Display device A. F. Bippus et al.
Display device J. Stranders
Display, Preserved fabric A. Fowler
Display rack S. Himmel
Display stand J. D. Walsh
Ditching machine (Reissue) B. Bowman
Divanette C. J. Kindel
Dobby R. F. Watchoru
Door-building device H. E. Moore
Door check H. A. Kendall
Door hanger C. P. Chamberlin et al.
Door-operating device T. A. Fabrin
Drafting instrument J. H. Ewbank
Drain pipe, Sheet-metal W. N. Klotz
Draw bar carry iron J. M. Rohlfing
Drawing patterns, Mechanism for E. H. Mumford
Dressing case H. V. A. Loring
Drill boot F. L. Glenu
Drinking fountain J. W. Manu
Drinking fountain, Sanitary I. S. Moore
Dye, Azo P. Hauptmann
Dyes and making the same, Azo O. Schmidt
Dyestuffs and making same, Disazo E. Zehntner
Dyestuffs of the indigo series and making same V. G. Engi
Dynamites and other high explosives into shells, Machine for packing H. Auchu
Educational, amusement, and advertising purposes, Appliance for A. I. Gancher
Electric-current controller H. W. Leonard
Electric machines, Collector-ring for dynamo A. Kingsbury
Electric regulator W. H. Clarke et al.
Electric reversing switch and circuit-closer C. Haas
Electrical ignition systems, Distributer for A. Diemer
Electrical switch O. N. Wiswell
Electrolysis H. M. Du Bois
Electrometallurgical process of reducing metallic oxides D. A. Lyon et al.
Embroidering machines, Fabric frame of K. Keller
Engine muffler or silencer, Gas C. H. Kenney
Engine starter, Internal-combustion W. R. Strickland
Engine-starting apparatus E. A. Halbleib
Engines, System of ignition for explosive L. J. Le Pontois
Envelope C. N. England
Exercising apparatus M. J. Sullivan
Explosive engine J. J. Shively
Eyeglass polisher H. M. Waterman
Fan, Fly J. W. Williams
Fan, Impulse C. W. Rogers
Fans and the like, Device for retarding the discharge from suction S. C. Roberts
Feeding mechanism C. J. Fancher
Feeding mechanism M. J. Welling
Fermentation, Promoting E. Pohl
Fertilizer A. R. Frank
Fertilizer distributor S. R. Sikes
Fertilizer distributor E. M. Cole
Fertilizer distributor E. Rotramel
Fertilizer distributor E. M. Cole
Fertilizer, Making S. B. Newberry et al.
Fibrous materials, Machine for teasing and cleaning S. Ware
Filter J. F. Wise
File for letters, invoices and the like A. Meckel
Fire-alarm system, Electric J. L. Flagg et al.
Fire escape J. A. Weaver
Fire-extinguisher system, Chemical-mixing (2 pats.) R. L. Cooney
Fire-extinguisher system, Dry-pipe water service (2 pats.) R. L. Cooney
Fire-extinguisher system, Pressure-controlled R. L. Cooney
Fire-extinguisher system, Stationary (6 pats.) R. L. Cooney
Fire lighter W. M. Kloeb
Firearms, Powder and repellant for use in C. Newton
Fireproof partition J. Scheas
Float W. R. Uchtmann
Floor construction H. H. Vought, Jr.
Floor polisher M. E. Goodhue
Flushing tank, Sanitary J. L. Gish
Fly trap G. J. Carlisle
Fly trap J. W. Hodges
Flying machine R. Plastino
Forging machines, Turning device for S. B. Heppenstall
Frogswitch J. O. Bowmaster
Fruit gatherer A. B. Hanson
Fuel economizer E. B. Freeman
Fur piece, Convertible G. Epstein
Furnace-controlling apparatus J. Denton
Furnaces, Gas-controlling means for regenerative W. Reitmeister
Furniture, Convertible A. Johnson
Furrow gauge E. B. Willis
Fuse, Inclosed electric W. J. Morgan
Game appliance, Rotary B. Rosenfelder
Garment stretcher C. Starke
Garment supporter R. S. Carter
Gas burner C. A. Johnson
Gas burners, Trapping device for G. B. Van Sickle
Gas cleaner B. Walter
Gas-heating appliance M. J. Green
Gas lighter, Automatic H. Meyer
Gas-testing apparatus E. Johnson
Gate A. Carter et al.
Gate M. A. Stickley
Gearing A. Gazagnaire
Gearing W. Schellenbach
Gearing H. Allen
Glass-drawing bait J. E. Milliren
Glass, Grinding and smoothing W. L. Kann
Globe and shade holder W. C. Homau
Golf-club attachment E. G. Morley
Golf-practice machine P. H. Lynch
Governor mechanism F. W. Severin
Grain drier P. Provost
Grain drill C. L. Fowle
Greenhouse construction R. I. Rapp
Grinding and crushing mill A. M. Dellinger
Grinding device for machine tools H. L. Pixley
Grinding machine for razor blades T. C. Sheehan et al.
Hair cutter, Safety J. W. Williamson
Hammock support H. H. Jones
Handle-turning machine W. C. Farnum
Handling broken ends, Device for A. G. Shideed
Hanger J. Irvine
Harvester, Beet F. Duhsel
Harvesters, Wheel-setting mechanism for C. R. Herpel
Hat attachment J. Sauter
Hat-pin guard J. Nemeth
Heat or fire alarm, Thermostatic G. S. Simpson
Heating apparatus L. W. Millis
Heating device for baths and the like J. R. Carter
Heating element, Electric T. M. Caven
Heel, Interchangeable resilient H. P. Roberts
Hinge, Concealed J. F. Streberger
Honing wheels, Machine for truing T. C. Sheehan
Hood and neck protector F. P. Fiori
Hook and fork, Combined E. H. Biel
Horseshoe calk W. I. and J. W. Miller
Horseshoe pad D. Cruice
Horseshoes, Antislipping device for W. F. Smythe
Hose supporter C. F. Smith
Humidifier H. F. Guenther et al.
Humidifier C. H. Kelsea
Hydraulic apparatus C. Wigtel
Hydrocarbon burner C. J. Becker
Hydrocarbon burner, Liquid D. McKee
Hydrogen under pressure, Working with C. Bosch et al.
Indicator O. S. Jones
Inking gear, Adjustable C. Martin
Insect trap K. B. Cook
Insulator, High-voltage J. Buckley
Internal-combustion engine M. P. Maxwell
Internal-combustion engine L. A. Marcello
Internal-combustion engine N. B. Simpson
Ironing table G. Donges
Jar cap E. D. Schmitt
Jewelry F. B. Weiss
Journal bearing J. R. Fleming
Kinematographs and phonographs synchronously, Automatic clutch running L. Gaumont
Kinoscope J. A. Le Roy
Knitting machine M. Kohlsdorf
Lace rack L. E. Jones
Lamp C. E. Godley
Lamp, Electric A. G. Hoban et al.
Lamp socket T. R. Willwerscheid
Lariat-chose clip A. E. Westberg
Latch E. L. Scott
Latch, Spring C. L. Frost
Lathe J. Fleige
Lathe attachment, Screw-cutting A. J. Peterson
Lathes of the turret type, Cross slide of H. Austin
Lead, Producing white E. Euston
Ledger plates, Fastener for G. E. Rodman
Letter-opening machine M. A. Mihills
Life preserver E. Russell
Life-saving device J. Scarlett
Lighting apparatus E. A. Hawthorne
Lincrusta, linoleum, or like diapered-like cloth, Producing C. G. E. Werner
Lime-setting and casting machine H. Degener
Liquid gauge P. Drautzburg
Liquid-impregnating device G. E. Heyl et al.
Liquid mixer, shaker, and juice extractor L. I. Reichner
Liquid trap P. D. Hay
Liquids, System of storing and conveying inflammable and other H. von Eicken
Lock B. Borland
Lock-mortising machine I. H. Bradley
Locomotive boiler, Articulated W. J. Leighty
Locomotive, Electric J. L. Davis
Locomotive journals, Hub liner for L. K. Smith
Log car O. Olsson
Loom attachment W. A. Woods
Loom picker check E. S. Stimpson
Loom, Pile-fabric N. M. Shinn
Loom shuttle, Weft-replenishing (2 pats.) E. S. Stimpson
Looms, Automatic weft-bobbin-exchanging device for A. G. Koehlin
Lubricating apparatus W. L. Morris
Lubricator S. D. Jones
Magnetic separation, Method and apparatus for O. A. Zander
Mail-bag ring W. H. Jones
Mail box U. C. Greggs et al.
Matrix-distributing mechanism R. M. Grove
Matrix-setting and type-line-casting machine H. Degener
Measuring and rewinding machine, Cloth O. A. Heckel et al.
Mechanical movement F. E. Bright
Mechanical movement C. F. Skinner
Melting and casting pot T. C. Sheehan
Mercury compounds, Organic M. Engelmann
Mesh bag and making the same C. A. Smith
Metal piling structure C. Trimborn
Metal-working machinery, Driving and feeding mechanism in A. M. Sosa
Metals ductile, Rendering insufficiently ductile C. Trenzen
Metals from supiferous materials, Cyclic process of extracting A. David
Metallic surfaces, Means for deusifying F. L. O. Wadsworth
Metalloidal material E. Weintraub
Milking apparatus O. G. Rieske
Mixing materials, Apparatus for C. W. Thomas
Mold F. P. Martin
Mold for hollow articles J. W. L. Kerr et al.
Motor attachment G. K. Clark
Motor-control system, Electric J. H. Klinek
Motor controller, Electric R. F. Baerlocher
Motor-controlling means H. W. Leonard
Mouse trap J. G. Wiesen
Music-leaf turner C. Bergren
Music rolls, Combined marking and spooling machine for G. H. Davis
Musical instrument, Self-playing L. B. Doman
Musical instruments, Apparatus for mechanically operating H. C. Coldman et al.
Nail puller J. N. Haley
Nut-cleaning machine S. A. Freer
Nut lock A. Mazur et al.
Nut lock M. Schotsch
Nut lock M. C. Ulrich
Oil, Apparatus for receiving, separating and filtering E. Moulie
Oil burner, Hydrocarbon Z. L. Melick
Oil burner, Wick blue-flame A. J. Blackford
Oil can J. W. Nilsson
Oil can and funnel J. J. Cox
Orchard heater J. L. Hamilton
Ordnance, Breech-block-actuating gear for A. T. Dawson et al.
Ores and the like, Treating N. C. Christensen, Jr.
Organ pipe R. Y. Barrows
Overload device H. R. Canfield
Packing, Metallic W. Sudekum
Packing ring A. W. Wenzel
Paint-removing device M. L. Spira
Paper and like cups, Machine for making E. A. Stratton
Paper board C. S. Bird et al.
Paper or fiber tubes or core, Machine for making G. S. Witham, Sr.
Paper tube and making the same C. S. Bird
Paper-winding reel G. Miller
Paving block O. A. Heckel
Pawl-and-ratchet mechanism J. L. Beck
Peeler R. Powell
Pen, Writing E. H. Ketchum
Pencils, pens, &c., Holder for J. H. Boye
Photographic record I. Kitsee
Phosphorites, Converting H. V. Dugham
Photographic retouching frame H. Sumbulian
Pier quay wall, Winged H. C. Smith
Piling-protecting device J. Crockett et al.
Pilot-light protector H. H. Davenport
Pineapple-centering attachment H. G. Ginaca
Pipe bends, Making U-shaped (2 pats.) P. Esch
Pipe connector, Automatic train V. S. Durbin
Pipe coupling G. J. Ferguson
Pipe fitting D. G. Anderson
Pipe wrench W. R. Evans
Plane F. D. Stine
Plane for boats, Side J. D. Hunt, Jr.
Planers, Pressure roll for A. L. Byther
Planing machines, Chip breaker for P. A. Solem
Plant protector C. A. Bigelow
Planter and fertilizer distributor, Combined W. L. Schoening
Planter hopper, Potato T. J. Kelly
Plow and cultivator, Combined C. E. Womble
Plow and subsoiler, Combined J. R. Harrison et al.
Plow attachment K. Schulte
Plow, Motor J. N. Parker
Plumber's kit F. Auty
Pneumatic-carrier system F. W. Nelson
Pneumatic cleaner E. E. Yaxley
Pneumatic cleaning device C. L. Saunders
Pocket, Fabric F. R. Batchelder
Pocket for trousers, Safety J. Barrett
Portable elevator and wagon dump, Combination C. W. Cotten
Post puller E. Olson
Pot lid E. Relyea
Power transmission, Electric system for operating speed-varying R. W. Bradley
Preserving aliments V. Frestadins et al.
Pressure-controlling device G. F. Steedman
Pressure regulator, Thermostatic W. C. Squire
Printing from intaglio printing plates, Machine for H. A. W. Wood
Printing machines, Combination and arrangement of rotary web C. W. Doll
Printing-press automatic feeding device H. Honigmann
Printing-press feed guide W. P. Harmony
Projectile T. A. Fiddeland
Proscenium closure and projector screen J. A. O'Brien
Pruning shears T. E. Wylie
Pulverizer, Disk T. W. Capen
Pump, Air-suction and force F. O. De Hymel
Pump, Centrifugal B. Hunt
Pump, Gas C. A. Anderson
Pump, Pressure-operated deep well P. G. Kaiser
Punch gags, Means for operating W. T. Sears
Purse and bag fastener T. Tighe
Puzzle H. G. Randall
Rail joint A. J. Neafie
Rail joint and chair W. H. Lesh
Rail joint for railways J. M. Maher
Rail joint, Insulated R. B. Abbott
Rail stay (2 pats.) J. M. Vail
Rails, Anticreeper for C. W. Breed
Railway brake C. W. Brake
Railway electric signal J. H. Gunn
Railway, Electrical suspension H. Muller
Railway rails, Mounting for W. P. Davies
Railway signaling device A. Stadler
Railway tie G. W. Maskrey
Railway tie and rail fastener E. W. Gates
Railway track (2 pats.) F. K. Holmsted
Rammimg apparatus, Reversing mechanism for roll H. P. Macdonald
Rat trap W. J. G. Young
Rat trap, Electric C. W. Beardsley
Reamer, Expansion C. O. Schellenbach
Rectal irrigator C. Sawyer
Reed, Layers of P. Krebs
Refrigerating machine J. J. Schrade
Register (Reissue) C. F. Fogg
Regulator W. M. Miller et al.
Road wheel, Elastic J. Spyker
Rotary engine P. Jorgenson
Roving and spinning frames, Stop-motion for cotton B. Ames et al.
Rubber, Hand C. Ritter
Ruffling and stitching machine A. H. De Voe
Rulers and the like, Self-guiding arrangement for parallel S. Sandurskyj
Safe D. Littlejohn et al.
Safe, Wall (Reissue) H. C. Lowrie
Sand rammer, Pneumatic S. Oldham
Sash bars, Apparatus for producing ornamented K. H. F. Huth
Sash, Window E. C. Shepherd
Scarf, Head G. S. Zick
Screw gripper and driver C. S. Reamy
Seal and knot protector S. Baruch
Sealing carbon tetrachloride, Process and apparatus for A. C. Rowe
Sealing machine, Envelope C. A. Burr
Sectional boiler M. A. Cook
Seed tester W. Weaver
Self-lubricating wheel F. G. Koehler
Separating device N. N. S. Daudelin
Separator guard A. W. Pitts
Separator-screen cleaner T. F. Morse
Sewing-machine clutch mechanism R. A. Scranton
Sewing-machine feeding mechanism J. M. Merrow
Sewing-machine looper mechanism H. A. Ballard
Shade and curtain-pole support J. Neuberger et al.
Shade roller and curtain-pole support, Combined G. E. Alphin
Sharpeur, Cutlery T. M. Klusewitz
Shears, Pivot for J. W. Folger
Sheet-operating and display mechanism E. W. Lanford
Ships, Towing device for R. Koss
Shirt C. H. Casebolt
Shock absorber C. N. Sowden
Shoe, Bathing A. Aumont
Shoe drier J. W. McIver
Shoe form A. G. Legge
Shoes, Squeak preventer for I. L. Keith
Shovel handle, Auxiliary E. B. Moore
Shovels and the like, Equalizing system for steam S. R. W. M. Bager
Shovels and the like, Equalizing system for steam L. Wehner
Show case, Glass E. Morris
Shredding machines, Shock-receiving and delivering means for J. K. Sharpe, Jr.
Shuttle F. E. Valois
Shuttle, Automatically threading J. Smith
Shuttle-threading device I. Snow
Sign, Moving J. B. Hutchinson
Signal D. I. Kelly
Signal lock D. J. Kavanagh
Signalling apparatus, Elevator T. Porter
Silos and tanks, Inside brace for E. E. Reed
Silver cleaner J. L. Ennis
Slug-casting machines, Slug delivery for H. A. W. Wood
Snow remover G. H. Mansfield
Sound travels, Apparatus for indicating the direction whence T. G. and W. Hodgkinson
Spark arrester C. A. Cardwell
Spark gap, Electric R. H. Wappler
Spark timer H. M. Scheibe
Speed governor W. J. A. London
Speedometers, Driving device for vehicle F. M. Murray
Spindle G. M. Whitin
Spindle C. S. Foster
Spinning-frame speed controller W. T. Holmes et al.
Spinning machinery J. J. O'Connor
Spinning or twisting apparatus, Ring (2 pats.) H. G. Beede
Spool A. Glaser et al.
Spring motor V. W. Creech
Spring supporting system J. Holt
Square, Take-down A. A. Page
Stair structure, Metallic J. T. Nesdall
Stalk cutter E. M. Cole

Steam generator, Superheating P. Jorgenson
Steering gear M. D. and N. C. Satterlee
Stone and product obtained thereby, Making artificial S. Sborowitz
Stone-dressing-machine tool carrier W. H. VanSickel
Stool, Milking L. Hanson
Store fixture J. G. Lundy
Stove, Blue-flame oil A. J. Blackford
Stove, Blue-flame wick E. Bockenkamp
Strainer, Wire J. J. Keppel
Street indicator for electric cars J. E. Morton
Studio chair W. F. Folmer
Stuffing box and bearing for shafts of marine propellers H. D. Bacon
Stump extractor E. P. Boden
Suitcase lock E. B. Stone
Superheater, Steam C. S. Hooper et al.
Surgical instrument J. Bandieri
Syringe J. H. L. Eager
Syringe, Extractor and capsule J. L. McClellan
Tack raceways, Locking device for A. Witt
Tag holder D. F. Byrnes
Talking machine E. R. Johnson et al.
Tank gauge B. H. Camden
Tank valve levers, Connecting device for water A. L. Neilan
Tape-line protector J. J. Miller
Target trap H. C. Lord
Telegraph key R. L. Boulter
Telegraphic systems, Automatic transmitter for J. Gell
Telemeter, Coincidence O. Eppenstein
Telephone calls, Enumeration of S. D. Williams
Telephone-receiver stand M. Schwartzberg
Telephone system J. G. Blessing
Telephony (4 pats.) M. L. Johnson
Textile articles, Preserving A. Fowler
Thumb stall R. N. Thomas
Ticket holder, Car A. Westensee
Tie plate W. L. De Remer
Tilting furnace for smelting pyrites and sulphur ores E. Knudsen
Timber pocket and plate W. E. Tripp
Time recorder, Workman's F. J. Tran et al.
Tire, Vehicle (Reissue) M. C. Overman
Tire, Wheel C. L. Schwarz
Toaster F. A. Grearson
Tool handle J. L. Osgood
Tool handle C. B. Keller
Tool holder S. E. Green
Towel holder H. C. McDonald
Train control J. E. and W. L. Williams
Tree protector C. I. Helm
Trolley-wire crossing, switch, and the like S. S. Goldman
Trousers shield A. B. McCall
Trowel J. E. Runner et al.
Truck G. E. Smouse
Truck, Car W. H. Nunamacher
Truck, Compensating W. Ferris
Tube-coiling machine J. E. Lewis
Tunneling machine N. Ebbley
Turbine C. T. Owens
Turbine wheel O. F. Bruman
Turn-table J. L. Smith
Twine cutter T. H. Howell
Twisting or spinning machines, Thread guide for thread-boards of H. G. Beede
Type, Machine for feeding H. C. Gammeter
Type-writing machine for printing notes F. Groen
Typographical machine P. T. Dodge
Typographical machine D. S. Kennedy
Typographical machine R. O. Boardman
Unbuttoning device J. F. Schwery
Vacuum cleaner H. T. Rodden
Vacuum drier O. S. Sleeper
Valve for radiators, Air F. W. Leuthesser
Valve gear C. B. Pirie
Valve, Radiator F. L. Shell
Valve, Radiator vent A. Jackson
Valve seats and for like purposes, Machine for facing and refacing W. Crockett
Valved stopper for siphon and other bottles T. F. Garrett
Vaporizer for fumigating, perfuming, and the like W. L. Oddey
Vehicle J. A. Becher
Vehicle and like wheel G. F. Godley
Vehicle, Motor J. W. Bruce
Vending machine S. L. W. Coe et al.
Vending machine H. B. Cooley
Vessel C. R. Seaquist
Vessel hull P. J. J. Saupe
Vestibule diaphragm and support therefor J. E. Muhlfeld
Veterinary medicine J. T. Slusher
Violin players, Attachment for C. F. Fredrikson
Viscose in a granular, soluble and stable condition and preparing the same, Dry H. Lynce
Wagon G. W. Myers
Wagon, Harrow-truck F. N. Sundberg
Wagon seat L. A. Larson
Wardrobe, Portable F. F. McGuire
Washing machine B. J. Reid
Washing-machine driving mechanism O. H. Watkins
Watch W. E. Porter
Watch support A. Bannatyne
Water-heating device J. C. Reissling
Waterproof composition N. Forni
Weft-grooving and beveling machine, H. Lyon
Weighing apparatus, Automatic P. Edtbauer
Welding machine J. H. Gravell
Well-cleaning device J. F. Kilburn
Wheel T. L. Cook
Wick-raising and lowering device H. Jungjohann
Wind-shield lock joint J. F. Curry
Wind-shield lock joint A. Krah
Windmill J. O'Toole
Winding machines, &c., Traverse mechanism for G. W. Foster
Window and door, Metallic A. L. Lambert
Window rain shield C. P. Orth
Window screen R. S. Foster
Window screen P. Illes
Window, Sheet-metal A. W. Eckberg et al.
Wire splicer E. Martin
Work tables, Collapsible support for O. Maier et al.

Woven tubular tie J. C. Gaynor
Wrappers around rectangular tablets, Machine for folding F. Grover
Wrapping machine S. I. Presscott
Wrench C. Andersen
Wrench R. P. Habel
Yoke, Draft gear C. J. Nash

Issued October 14, 1913.

MECHANICAL PATENTS.

Accumulator plates, Making B. Zytzkowski
Acid and preparing the same, Anhydrid of salicylic E. Kopetschni
Acid, Dinitrophenylarsinic L. Benda
Acid, Nitroaminophenylarsinic L. Benda
Addressing machine J. S. Duncan
Adjustable stand I. Benjamins
Aerial vehicle J. E. Fraser
Air brake, Combined automatic and straight J. W. Cloud
Air brake, Combined automatic and straight G. A. Boyden
Air craft J. Pobuta
Airship J. W. Boughton
Alimentary products, Manufacture of P. Muller
Alloy, Lead C. P. McConnell
Amusement apparatus L. C. J. Bouracier
Animal trap S. P. Verner
Annunciator, Train S. C. Bryant
Armor-plating, Manufacture of E. Fischer
Atomizer F. C. Dormont
Automobile A. W. Crane
Automobile L. W. Coppock
Automobile construction H. Ford
Automobile vehicles, Differential mechanism of M. Berthier
Automobile wheel help F. V. Phillips
Automobiles, Locking device for gear-shift levers of W. H. E. Pendleton
Awning H. Smith
Bag frame F. Goertz
Baling machine, Automatic T. S. Pearson et al.
Baling press W. R. Potter
Barrel head R. O. Carter
Basin W. A. Dunlap
Bath tub, Collapsible L. Helli
Battery W. H. Fenoughty
Bearing, Ball O. C. Knipe
Bed-frame corner construction E. Larson
Bed, Invalid J. A. Bartholme
Bed, Spring F. S. Inco
Beds, Corner block for iron and brass (2 pats.) F. V. Griesman
Beet-cutting machine R. J. Binkley
Beet topper J. A. Weaver
Belt-dressing applier J. M. Reed
Bench and wringer support, Combined A. Weyenberg
Bicycle frame, Motor E. Y. White
Binder, Loose-leaf C. L. Benjamin et al.
Binder, Loose-leaf R. M. Watson
Binder, Loose-leaf A. J. McAllister
Blading J. E. Snyder
Bleaching and for preparing bleaching, deodorizing, and disinfecting solutions, Apparatus for O. Sumner
Blow-out holder F. Fourt
Blowpipe and using gases therein M. K. Dunham
Boat H. B. Prosser
Body brace, Self-locking L. A. Fritsch
Boiler feed-regulator C. M. Clark
Boiler stand T. O'Connell
Bolt (2 pats.) P. M. King
Book signature, pamphlet, &c. G. D. Hart
Bottle J. B. Colon
Bottle closure R. E. Redding
Bottles, Detection device for M. Krompigel et al.
Box J. R. Winter
Box for plumes and similar articles J. A. Stein
Box-lid holder B. D. Miller
Boxes, &c., for detinning, Apparatus for preparing tinned sheet iron H. Goldschmidt
Bracket A. W. Browne
Braiding machine B. S. F. Ell
Brake P. Buda
Brake shoe, Reinforced J. J. Morse
Breast holder J. Vacek
Brick, Spinel fire C. A. Mankau
Broom hanger J. N. Oveson
Buckle T. O'Brien
Building structure, Portable A. Miller
Bundle or package carrier H. S. Thomas
Burner J. Weintz
Burner tip, Non-clogging F. E. Baldwin
Bushing and terminal board, Transformer S. E. Johannesen
Cable-cutting device W. T. Quinlin
Cable-saving device J. Dailey et al.
Calipers, Micrometer J. H. Muller
Cam, Controlling C. M. Walker
Camera into a focal-plane-shutter camera, Means for converting an ordinary roll-film J. Barberie
Can attachment, Oil L. H. Burchett
Can container and perforator, Combined L. A. Peltason
Can feed and transfer mechanism C. H. Ayars
Cap-forming and applying machine C. C. Stutz et al.
Car coupling S. V. Laughinghouse
Car coupling and pivot pin therefor R. E. L. Janney
Car coupling, Automatic J. Giroux
Car, Dump D. E. Blair
Car, Dump A. Campbell
Car, Dumping R. G. Work
Car-dumping mechanism N. S. Reeder
Car, Hopper (2 pats.) F. L. Irvin et al.
Car step, Swinging M. A. Hoff
Cars, Bulkhead for G. C. Boller et al.
Cars, Ladder and handhold for railway W. E. Wine
Cars, Switch-throwing mechanism for railway W. L. Slate
Carbureter W. Elkin
Carbureter for household and other uses C. H. Myers

Carbureter for motor-cycles and other purposes C. H. Myers
Card for holding articles having an angular profile R. Lehenhart
Carton filler M. T. Ash
Cash registers, Annunciating means for G. F. W. Schnltze
Caster A. Ballenberg
Caster, Ball S. W. Bennett
Chair A. G. Eyles
Chair seat W. D. Schmits
Channel-opening machine F. M. Trainer
Check, Excess-baggage G. J. Singleton
Check, Waiter's E. A. Hawk
Chimney sweep, Automatic L. R. Morris
Chuck H. E. Herms
Chuck W. L. Bryant
Chuck, Drill T. Decknik
Chuck, Fluid-actuated lathe H. M. Ludwick
Churn W. F. Barbee
Cigar-box humidifier J. A. Simpson
Cigar-moistening apparatus J. Litchfield
Cigar wrapper (2 pats.) E. N. Gilfillan
Circuit breaker C. C. Badeau
Cloth-piling machine J. B. Rosenstein
Clothes hanger G. W. Founke
Clothes pounder J. Lurtz
Clutch J. B. Entz
Coal burner, Soft P. P. Cooley
Cock for motor vehicles, Stop J. Mazuel
Cocks, Device for operating cut-out R. E. Adreon
Coffee-making apparatus A. Reichert
Coffer dam F. J. MacIsaac
Coin-registering mechanism W. H. Hall
Collapsible box A. A. Fordon et al.
Collar tab, Detachable C. P. Band
Commutator for dynamo-electric machines T. S. Scott
Composition of matter P. B. Meerbott
Composition of matter, Making P. Ferra
Concentrating apparatus, Dry A. Audet
Concrete, &c., Apparatus for mixing and distributing J. F. Garretty
Concrete-block-making apparatus A. Pelke et al.
Concrete construction G. F. Mills
Concrete post C. A. Melchert et al.
Concrete-shingle mold F. B. Cole
Concrete walls, Means for constructing A. D. Whipple
Confectionery box W. A. Matthews
Contacting device, Automatic F. McMahon
Conveyer F. W. Burpee
Conveyer O. H. Cilley
Corn popper C. Cretors
Corset fastener V. B. Berger
Corset stay, Wire H. B. Downer
Corset stay, Wire M. M. Downer
Cotton chopper A. F. Root
Cotton-stalk knocker T. G. Strickland
Coupling W. S. Eubank
Crank fender operator, Controller, E. Guthrie
Cream and similar substances, Treating F. H. Stanley
Cultivator V. Lauer
Cultivator and chopper, Cotton D. B. Dowdell
Cultivator, Disk L. A. Drummond
Cultivator, Wheeled S. D. Poole
Current rectifiers, Impedance device for use with F. Conrad et al.
Cuspidor M. A. Brown
Cutting tool W. J. Van Osdel
Dating machine E. E. Gregory
Defecator M. B. Cresswell
Demonstrating device H. D. Clark
Dental tool A. K. Hoffman
Derailment guard W. L. Nelson
Developing tank J. H. Drosser
Direct-acting engine A. Ball et al.
Disinfectant, Automatic poultry J. L. Riley et al.
Distributing machine W. J. Poole
Doffer B. A. Peterson
Doll E. D. Lee
Door for cabinets, Air-tight H. F. Beers
Door motors, Electromagnetic control of T. Farmer, Jr.
Draft rigging J. M. Waugh
Draw bar, Emergency D. J. Phalen
Drill machine, Multiple J. McLellan
Drill-rod connection J. D. Boughner
Drinking fountain G. M. Page
Drinking fountain, Sanitary H. J. Milner
Drying machine A. B. Benson
Drying process G. H. May et al.
Drying tumbler R. Roost
Egg-candler W. W. Foster
Egg detector, Hydrometric W. H. Hutchinson
Elastic webbing S. Kops
Electric device, Vapor F. P. Coffin
Electric device, Vapor E. Weintraub
Electric heater W. O. Peale
Electric light, Portable C. Hubert
Electric-lighting apparatus, Portable H. H. Hirsch
Electric machine, Dynamo H. Weichel et al.
Electric switch J. P. McElroy
Electrical distributor J. L. Adams, Jr.
Electrical heater element and making the same H. B. Taylor
Electrocuting device, Animal (2 pats.) J. L. Riley et al.
Electrode J. L. R. Hayden
Electrode R. N. Chamberlin et al.
Electrode, Arc-lamp G. M. Little
Electrode, Arc-lamp F. R. Crane, Jr.
Electrolytic cell (3 pats.) C. W. Marsh
Electrolytic cell A. H. Hooker
Electrolytic cell G. W. Stone
Electrolytic cell C. W. Marsh
Electromagnetic retaining device G. Rekers
Empty and load brake W. V. Turner
End gate and scoop board, Combined A. M. Allemang
Engine F. E. Caiu
Engine-cooling system, Internal-combustion L. S. Hackney
Engine mounting for geared locomotives, Steam L. E. Freightner
Engine starter E. F. Wells
Engine starter J. Hume
Engines, Double ignition system for internal-combustion D. B. Hughes
Engines, Ignition and starting mechanism for internal-combustion L. E. Clark
Evaporator, Finishing M. B. Cresswell

Engines, Spark-controller for explosive A. L. Moore
Evaporator, Fruit T. E. Koser
Excavating and dredging machine W. R. Litchfield
Explosive engine J. E. Bar
Explosive engine, Two-cycle E. J. Wolf
Face shield T. J. Powers
Fastener, Automatic A. E. Pollock et al.
Faucet P. J. Litchfield
Faucet L. Abraham
Faucet-closure for cans D. B. Tamm
Feed bag J. C. R. B.
Feed-bag for animals G. A. Borman
Feeding mechanism H. C. Baker
Fence dropper W. D. H.
Fence machine, Wire (2 pats.) W. N. Parnish
Fence post J. W. H.
Fence post, Metal W. M. Lewis
Fence post, Metallic H. D. Clark
Ferrosilicic oxide, Manufacture and use of H. Goldschmidt
Fertilizer distributor and cotton-seed planter, Combination R. H. Barrett et al.
Filament, Metal C. A. Hansen
Filing appliance E. T. Schwab
Filing case P. S. Mille
Filling machine, Automatic H. G. Dewey
Filter and heater, Dental water C. Jr. and A. E. Joerin
Filter and sediment trap, Combined O. F. Kadow
Firearm, Automatic repeating A. C. McClure
Fireplace furnace M. J. Garquhar
Fireproof partition G. H. Feraudts
Flat irons, Automatic temperature control for self-heating E. Rud
Fly swatter G. D. Henry
Flying machine O. and W. Wright
Flying machine J. Rystedt et al.
Flying-machine equilibrators E. D. Stevenson
Forge and press, Combination J. Kilduff
Foundry plant, Steel C. W. A. Koelbeck
Fountain heater, Drinking H. L. and E. M. S. Fisher
Fruit-pitting machine J. Caldwell
Fuel-controlling device L. A. Drago
Furnace-feeding device J. Harrington
Galvanic cell M. L. Kaplan
Game carrier W. G. Gilliam
Garment clasp G. E. Prentice
Gas producer J. A. Herrick
Gas producer J. K. Lyons et al.
Gas regulator C. W. Henson
Gases, Apparatus for separating liquid articles from A. Spiegel
Gaseous-fluid mixer C. H. Myers
Gasket-cutting apparatus J. Merritt
Gate J. C. Zoll
Gate-opening mechanism H. and P. E. Condell
Gear case J. E. Bales
Gearing W. B. Wolff
Gearing, Transmission G. W. Bulley
Gearing, Transmission R. Huff
Glass device, Plate M. A. Ross
Glass devices, Manufacturing plate M. A. Ross
Glass-grinding machine A. W. Hornig
Go-cart E. B. Overshiner
Grading machine C. H. Foley
Grain-drill feed mechanism P. Broman et al.
Grain separator S. J. Rice
Grate bar E. L. Thomas
Grinder, Cutlery (Reissue) H. E. Sweet
Grinding and polishing machine, Wood J. Steingasser et al.
Grinding-stone, Apparatus for regulating the pressure on C. A. Johnson
Gyroscope E. N. Darrow
Hair-cutting machine F. P. Dyer
Hammer, Spring R. R. Smith
Harness, Single hitch for orchard and vineyard W. H. Welch
Harvester, Beet E. S. Ramsey
Harvester, Beet C. Powlison
Harvester headboard G. L. Cotter
Hat-pin retainer J. Boland
Hat-pin, Safety L. Myers
Hay loader C. J. Patterson
Headless bolt A. E. Burrage
Headlight, Dirigible E. Hoenisch
Heat-insulating and thermo-electric purposes, Composition for P. Ferra
Heating system, Vacuum steam M. P. Osbourn
Heddle C. Enger
Helmet, Sanitary sand blast W. Duncan et al.
Hide-working machine R. F. Whitney
Hides, Drying W. H. Allen
Hinge F. Weber
Hinge J. P. Holtzhauser
Hoe E. F. Royley
Hoe attachment G. Carlsson
Hoop-tightening device, Silo J. Hanson et al.
Horseshoe I. Engstrom et al.
Horseshoes, Ice-creeper attachment for S. P. Smith
Hosiery R. W. Scott
Hosiery-finishing board G. T. Flick
Hot-water heater R. G. Doll
Hub attachment C. E. Partridge
Hydrocarbon burner W. T. Wall
Ice-cream-cone machine F. A. Bruckman
Ignition device, Magneto H. H. Wixon
Illuminating and advertising device, Combined G. A. Harter et al.
Implement attachment W. J. Dunham
Implement, Pocket J. S. Cameron
Incubator, Semifireless C. W. Zimmer
Index C. B. Van Dyke
Indicating device F. Rosewater
Indicator and power device therefor W. E. and M. E. Walters
Ink-pad, Alternating F. X. Knohel
Ink receptacles, Pneumatic attachment for H. T. Emeis
Internal-combustion engine R. C. Rose
Internal-combustion engine F. O. Kilgore
Internal-combustion engine H. A. Knox
Internal-combustion engine A. F. von Schmidt
Ironing device N. Oros
Jewelry A. Segman
Jewelry, Means for drying articles of A. W. Hutchins
Journal box for railway cars J. Caron

Kiln W. Drayton
 Kinematographs, Target apparatus for use with B. W. Bates et al.
 Kinestoscope projector F. B. Cannock
 Knife C. W. Tillmanns
 Labeling machine, Vessel G. L. Meyer
 Lace measuring and re-reeling mechanism H. G. Wesley
 Lace, Metallic P. G. Bachmann et al.
 Lacing shoe uppers, Machine for (2 pats.) W. A. Smith
 Lacing shoe uppers, Machine for E. E. Winkley
 Lamp and reflector, Incandescent W. R. Litzenberg
 Lamp, Arc J. J. Wood
 Lamp attachment, Electric W. P. McNeel
 Lamp holder, Swivel (2 pats.) C. N. Lowden
 Lamp, Incandescent R. H. Henderson
 Lamp socket J. Darby
 Lamps, Socket and terminal connection for electric W. C. Tregoning
 Lamp socket, Casing for incandescent-electric C. H. Bissell
 Lamp sockets, Means for fastening W. C. Tregoning
 Lamp switch, Electric J. A. M. Traus
 Land roller G. Trompeter
 Latch, Door B. H. Klister et al.
 Latch, Sliding door G. W. Merritt
 Lathing to beams, girders and the like in building construction, Clip for fastening certain forms of metallic H. E. White
 Leather-splitting machine W. D. Quigley
 Life-saving apparatus J. Le Blanc
 Lifting jack J. Coryell
 Lighting fixture O. H. Mohr
 Liquid container E. Catliu, Jr.
 Liquid cooler and carbonator, Combined H. E. Deckebach
 Liquid-dispensing device J. H. Champ et al.
 Liquid-leveling indicator R. C. Smith
 Lock J. H. Robertson
 Lock A. M. Hoes
 Lock switch, Door G. Wright et al.
 Locket P. A. Willemin
 Looms, Head-motion for E. H. Ryon
 Machine element M. D. Baldwin
 Mail crane, Automatic E. R. Lane
 Mangle W. Lassocki
 Manifolding device E. Caruey
 Measuring apparatus M. Arndt
 Melting furnace T. W. Morrell
 Metal-working machine (2 pats.) T. P. Payne
 Micro movements in weak-current techniques, Apparatus for producing and utilizing J. A. Johnsen
 Milk can S. V. Le Sieur
 Miter box J. T. Ross
 Mixer C. H. Myers
 Mixing apparatus W. S. Veaco et al.
 Molten bath and means for coating iron articles therewith H. J. Lohmann
 Mop holder and rake, Combination H. H. Hiukle
 Motor controller, Electric H. A. Steen
 Motor drive, Electric C. C. Batchelder
 Motor starter C. D. Knight
 Music-leaf turner S. J. Cook
 Musical instrument, Automatic W. H. Smith et al.
 Nail-set holder W. H. McKeen
 Necktie C. W. T. Davies
 Necktie holder F. Catuogno
 Needle clamp R. G. Woodward
 Nut lock E. E. Hickerson
 Nut lock E. Valentine
 Nut lock H. Vaterhaus
 Nut lock M. Simon
 Nut lock W. B. and G. C. Maxwell
 Nut-lock structure C. E. Whitehead
 Oil burner L. Boatwright
 Oil burner L. S. Thomas
 Oil burner J. Schurs
 Oil-drop lubricator F. Stabe
 Oils, Refining and purifying D. F. Lasher
 Oilless spindle N. Romano
 Ores, Treatment of N. H. M. Dekker
 Organ pipe R. Y. Barrows
 Oven V. V. Bolls et al.
 Overboot, Protective M. W. Murray
 Package, Reinforced H. C. Herr
 Packing, Piston H. R. Edgecomb
 Paper box P. C. Brashear
 Paper hanger, Portable wall A. C. Harry
 Paper-receptacle-making apparatus F. W. Burpee
 Paraffin, Production of translucent uniformly colored J. v. R. v. Alkemade
 Parcel carrier, Automatic W. L. Nelson
 Pen, Non-leaking fountain H. B. Dods
 Pencil J. A. Walls
 Pencil-sharpener, Automatic E. Grantzow
 Phonograph F. L. Dyer
 Phonograph records, Molding J. W. Aylesworth
 Photographic-printing machine J. N. Anderson
 Piano, Player E. R. Philblade
 Picture machine, Moving O. P. M. Davis
 Picture machine, Moving L. W. Merkel
 Pin guard C. H. Upton
 Pipe-bending tool O. A. Malo et al.
 Pipe connector, Automatic train O. K. Putnam
 Pipe or shaft hanger J. E. Jones
 Pipe plug G. W. McCutchen
 Pipe wrench W. E. Urquhart
 Plaiting machines, Device for arresting the plaiting bobbins of L. Ebeling, Jr.
 Planer cutter head J. C. Dunton
 Planing machine O. F. Thorn
 Planter J. F. Reeder
 Planter, Seed W. Day
 Plate registering and clamping device M. A. Droitcour
 Plow subsoil attachment W. R. Mathis
 Plow, Sulky L. A. Butterfield
 Plows, Lever adjustment for wheel J. W. Gamble
 Pneumatic-dispatch-tube apparatus A. W. Pearsall
 Pocket clip W. L. Chapman
 Point-changing mechanism P. Pestalozza
 Pole and shafts, Combined convertible vehicle D. B. Pate et al.
 Precious-metal dissolving means, Preparing a H. Foersterling

Power-transmission mechanism J. Young
 Presses, Tripping device for power J. H. Rodgers et al.
 Pressure-governed regulator D. S. Richardson
 Pressure-operating device A. Simon
 Print frame, Blue J. A. Hirschberg et al.
 Printing and for other purposes, Machine for N. E. Nickerson
 Printing machine L. A. Schmidt
 Printing master sheets for type-writer operators, &c., Machine for J. McTammany
 Printing or addressing machine S. C. Cox
 Printing or addressing machines, Type or slug feed for S. C. Cox
 Printing-press attachment J. G. Robertson
 Printing press, Flat-bed rotary H. B. Cooley
 Printing press, Phonographic R. T. Johnston
 Projectile with visible trajectory K. Wieser
 Projecting apparatus H. F. Patton
 Projecting apparatus H. Krieger et al.
 Pulverizer, Agricultural D. T. Phillips
 Pulverizing mill W. C. Fox et al.
 Pump W. A. Johnson
 Pump M. Lang
 Pump, Air F. E. Ten Eyck
 Pump or motor cylinder and making the same C. M. Manly
 Pumping attachment J. B. York
 Pumping device J. Davidson
 Rack N. C. Beegle
 Radius jack C. A. Fleming
 Rail joint A. C. Ernest
 Rail joint J. A. Greer
 Rail joint L. Knaak
 Rail joint W. Waidlich
 Rail joint H. H. Ferris
 Rails, &c., Means for forming parallel faces on the ends of W. Brewitt
 Railway bridges, Danger signal for J. E. Sjoman
 Railway metal tie and rail-fastening F. Jager
 Railway-motor ventilation J. D. Forrer
 Railway rails, Repairing E. Thomson
 Railway sleeper O. E. Wetzer
 Railway spike A. F. Gobin
 Railway ties, &c., Machine for barking H. L. Galloway
 Railway-track jacks, Roller for W. R. and C. F. Funk
 Railway track motor E. W. Hoover et al.
 Ranges, Automatic cut-off for gas C. Bargamin
 Rat trap, Electric J. Regeczy
 Razor, Safety V. W. Sipes
 Razor, Safety E. N. Humphrey
 Receptacle closure J. K. Gowen
 Recording instrument, Electric A. L. Sohm
 Recording meter P. Lauham
 Recording system and apparatus A. L. Sohm
 Refractory, electrically-conducting molded bodies, Production of G. Egly
 Rifle, gunnery, and like practice, Apparatus for F. Mitchell
 Roads, Making (2 pats.) J. S. Robeson
 Rock crusher T. L. Smith
 Rock drill C. Jackson
 Rock drills, &c., Locking chuck for S. W. Brothers
 Rock drills, Valved connection for S. W. Brothers
 Roofing material S. G. Wright
 Rope-grip device G. R. Hill
 Rotary engine J. B. and R. E. Neeley
 Rotary engine G. F. Moors
 Rotor construction F. W. Keunedy
 Salt-peter, potassium, or magnesium chloride and the like, Apparatus for comminuting calcareous H. Pauling
 Sanitary closet J. H. Foster
 Sash holder T. J. Starkey
 Sash lock J. Hunciker
 Sausage-linking machine J. Shier
 Sausage skins and the like, Manufacture of H. Deutsch
 Sausage stuffer C. Hanke
 Sawing machine, Portable circular W. Kaylor
 Scoop M. J. Gogarty
 Screw or the like, Set D. S. Goodwin
 Seal G. M. Browning
 Seed-cleaning machine A. D. Kennedy
 Sewing-machine braider or corder H. M. Greist et al.
 Sewing-machine cut-off attachment for tapes (Reissue) F. S. Jennings
 Sewing-machine shuttle M. A. Ross
 Sewing-machine thread-controlling mechanism D. W. Corey
 Sewing-machine, Triple-seam R. R. Hughes, Jr.
 Shade bracket L. R. Donovan
 Shaft detacher, Vehicle J. L. Garver
 Sharpener, Scissors T. F. Buck
 Sheet-metal slitting and winding machine H. J. White
 Sheet-separating, feeding and delivering apparatus E. A. Cox
 Shelves, Locking device for H. Kleber, Jr.
 Shock absorber C. W. Crawford
 Shock gathered H. Zimmerman
 Shoe D. Austin
 Shoe C. M. Bowman
 Show case W. H. Cobb
 Sifter for flour bins H. A. Hall
 Sifter, Rapid flour M. C. Schock
 Sign, Electric F. R. Crane, Jr.
 Signaling device for estimating distances J. U. Smith
 Signaling system, Electric R. M. Hopkins
 Silo W. H. Ludwig
 Silver, Sterling E. D. Gleason
 Skylight construction J. D. Thompson
 Sled, Flexible J. C. Minish
 Sleigh, Self-propelled A. J. Danney
 Sluice or valve gate, Cross-hung self-balancing G. Larson
 Soda water, Conveyor for bottled E. R. Barber
 Soldering furnace E. T. Burgess
 Soldering iron, Electric W. S. Hadaway, Jr.
 Soldering iron, Electric E. E. Rose
 Speed-changing device S. W. Wardwell
 Spinning-frame tool L. H. Rooney
 Spinning spindle C. H. Chapman
 Spraying device F. B. Graham
 Spring wheel H. Boardman
 Spring wheel W. L. Mann
 Spring wheel W. J. and P. Cook
 Stake holder L. Teegarden

Stays, Tip for garment D. Schuler
 Steam generator for oil burners P. Root
 Stenciling machine F. Sokolov
 Stoneware, Artificial R. F. Osborn et al.
 Stool C. J. Colling, Sr.
 Stool, Folding R. D. Morgan
 Stove, Oil W. J. Shults
 Stove unit, Electrically-heated W. S. Hadaway, Jr.
 Stovepipe joint W. H. Stephenson
 Street cleaner T. R. and J. P. Murray et al.
 Stropper C. M. Moore
 Stropping and like machine A. J. Postans
 Structural material J. H. Mills
 Stump puller A. J. Warren
 Suction and compression apparatus C. D. Haessler
 Sulphite liquor and compound obtained therefrom, Treating waste H. H. Hurt
 Suspender for artificial arms J. F. Rowley
 Switch-operating device M. M. McCombs
 Synchronizing device J. W. Bryce
 Tachometer O. Aberegg
 Talking machine R. Fromholz
 Target, Artificial bird E. E. Thresher
 Target, Revolving J. U. Clarke
 Telegraph, Image-transmitting L. Tschornor
 Telegraph transmitter (2 pats.) C. E. Scribner
 Telephone-exchange system F. R. McBerty
 Telephone hand set R. R. Ireland et al.
 Telephone pay station G. A. Long
 Threshing machine G. E. M. G-B. de Salaberry
 Threshing machine J. S. McCallum
 Tie plate and rail supporter R. Abbott
 Tile-making machine, Cement E. B. Turner
 Time recorder (3 pats.) J. W. Bryce
 Tire, Pneumatic F. C. Feiker
 Tire rack B. L. Waters
 Tire, Vehicle (2 pats.) A. W. Savage
 Tires, Adjustable shoe for automobile W. J. Jackson et al.
 Tires, Demountable rim for pneumatic R. P. Scott
 Titanium, Raising the alloying qualification of H. Goldschmidt et al.
 Toilet articles, Combined framing and handle for R. R. Debacher
 Tool handle D. J. Scott
 Tool holder, Expanding J. H. Bastian et al.
 Tooth A. M. Kaehr
 Toy J. C. Sharp
 Toy pistol (2 pats.) C. A. Bailey
 Track cleaner I. T. Merchant
 Train-control system J. L. Crouse
 Trains, Electrically-driven railless W. A. T. Muller
 Treating apparatus J. Aspinwall
 Trolley J. Gay
 Trolley insulated sections, Construction of R. R. Miller
 Trolley, Pantograph F. E. Case
 Truck, Automobile D. Gerber
 Truck, Car W. S. Adams
 Truck for geared locomotives, Multiple-wheeled L. E. Feighner
 Trunk N. Goldsmith
 Tube coupling, Swivel H. Cassidy
 Tube-cutting mechanism W. A. Lorenz
 Turbine, Elastic fluid F. J. Wilke
 Turbine, Gas N. B. Wales
 Type-writer attachment E. J. Barker
 Type-writer, Pneumatic M. Soblik
 Type-writer ribbon mechanism B. C. Stickney
 Type-writing and other key-actuated machines J. T. Schaaf
 Type-writing machine F. A. Robinson
 Vacuum cleaner J. B. Young
 Valve, Air J. M. Chambers
 Valve, Automatic controlling E. K. McKinley
 Valve, Brake A. E. Kirkley
 Valve device, Retaining W. V. Turner
 Valve for explosive engines, Rotary C. E. Mead
 Valve for internal-combustion engines, Combined intake and exhaust G. W. Moser
 Valve gear J. H. Gentry
 Valve, Needle A. Wait
 Valve-operating apparatus for flushing tanks F. W. Bamford
 Valve, Radiator E. E. Gibbons
 Valve, Thermostatic R. T. Parisen
 Vehicle brakes, Windlass attachment for G. P. Crutchfield
 Vehicle, Convertible G. M. Custer
 Vehicle indicating device M. Felix
 Vehicle springs and the like, Connecting means for J. M. de Saint-Martin
 Vehicle suspension, Compensation device for R. Guillery
 Vehicle wheel A. H. Miller
 Vehicle wheel, Spring W. H. Fahrney
 Vending machine F. C. Whitmore
 Vending machine, Liquid B. P. Buckner
 Vise G. W. Smith
 Voting machine J. H. McElroy
 Wagon J. C. and J. J. Raum
 Wagon, Duplex dirt N. B. McGhee et al.
 Wardrobe, Knockdown E. N. Johnson
 Washer J. F. Butler
 Washing and wringing machines, Operating mechanism for R. B. Goodrich
 Washing apparatus J. R. Smith
 Watches, Balance staff for T. Sokolowski
 Water cut-off, Automatic S. O. Thompson
 Water gauge F. W. Walraven et al.
 Wax-melting and sealing device M. Fournier et al.
 Web-replenishing machine E. F. Hathaway et al.
 Weighing apparatus for granular irregularly-running material, Counting device of automatic M. E. Reisert
 Weighing determined adjustable quantities of materials, Automatic apparatus for I. Steiner
 Well-boring drill M. T. McKee
 Well, Tube T. A. M. Brownlie
 Wheel K. Knudsen
 Wheel lubricator, Vehicle L. D'amours
 Wheel structure R. Macrae
 Wind shield P. J. Bernard et al.
 Windmill J. Serramoglia et al.
 Window A. R. Le Grue
 Window-cleaning attachment for automobile wind shields and the like T. T. Houghton

Window ventilator W. J. Dixon
 Windows in series, Mechanism for operating J. Whitehead
 Wire rods, Apparatus for coiling, coating and cooling V. E. Edwards
 Wire splicer F. R. Clark
 Wire stretcher P. C. Dean
 Wood and other fibrous materials, Method and apparatus for digesting J. C. W. Stanley
 Wood product J. D. De Cew
 Woodworking clamp E. K. F. Seidel
 Wrapping machine P. J. Baur
 Wrench H. Moon
 Wrench R. W. Sturdy
 Wrench G. B. Perkins
 Wrench and pipe cutter, Combination A. Hill

Issued October 21, 1913.

MECHANICAL PATENTS.

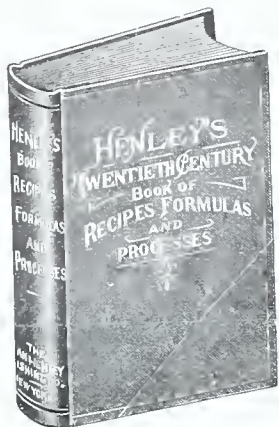
Abdominal supporter F. Z. Husar
 Acetyl-cellulose plastic masses, Making (2 pats.) W. G. Lindsay
 Acid from natural phosphates, Separating phosphoric M. M. Haff
 Acid from natural phosphates, Separating phosphoric M. M. Haff et al.
 Acids, Hexamethylenetetramin salts of the a-phenylquinolin-r-carboxylic R. Schwabe
 Advertising device C. H. Cross, 2d
 Aeroplane H. W. Macomber et al.
 Aeroplane W. F. Wiles et al.
 Agricultural implement P. W. Smith
 Air-brake apparatus H. F. Bickel
 Albumins to the original state, Restoring coagulated A. H. Rasche
 Alkali metals in the form of nitrates from minerals, Extracting A. Messerschmidt
 Alloy W. Rubel
 Alloy and producing the same, Aluminum W. A. McAdams
 Amusement device C. W. Wiltz
 Apparatus for securing device W. A. Pue
 Arches, Apparatus for constructing A. E. Schuffenhauer
 Area-finder apparatus A. C. Freeman, Jr.
 Automobile brake shoes, Material for C. O. Stinebaugh
 Automobile jack C. A. Hart
 Automobile jack J. T. Dillon
 Automobile signalling device H. P. Noble
 Automobiles and like vehicles, Cushioning device for F. O. Kilgore
 Automobiles, Emergency spindle for W. H. Vanskiver
 Autovalve C. W. Welman
 Awning F. C. Pennington
 Axle for motor vehicles T. I. Duffy
 Bait holder A. W. Baleh, Jr.
 Baling machine R. M. Mowry
 Baling press G. E. Jackson
 Ballast device R. A. D. Preston
 Band cutters and feeders, Side conveyor for A. C. Van Houweling
 Barrel support E. R. Hutchison
 Battery grid, Storage J. N. Davis
 Bean snipper W. B. Phinney
 Bearing, Thrust P. Wagner
 Bearings, Machine for lapping P. Keil
 Bed and sofa, Combined E. N. Brown
 Bed, Collapsible F. A. Palmer
 Bed, Cooling E. E. Slick
 Beet topper H. Harrison
 Bell J. L. Roycourt et al.
 Beta-gamma-dimethylethylene, Producing F. Hofmann et al.
 Bin P. B. Schell
 Blackboard, Illusion device G. F. DeGrasse
 Blower, Rotary G. L. Reichhelm
 Boat, Collapsible A. J. Kolanko
 Boiler-flue cleaner, Steam C. W. Hamilton
 Bolster, Folding J. C. Fairfield
 Book, Loose-leaf R. Lord
 Boots and shoes, Assembling parts of O. Ashton
 Bottle device, Antifraud R. V. Donald
 Bottle, Non-refillable C. B. H. La Bounty
 Bottle, Non-refillable G. H. Montford et al.
 Bottle, Non-refillable J. Triolo
 Bottle, Non-refillable W. A. and C. R. Woodhull
 Bottle-steaming apparatus A. A. Pindstoffe
 Bottle stopper, Water M. C. Schweinert et al.
 Bottle-washing machine R. L. Gallup
 Bottle wrapper P. T. Clark
 Bow holder F. F. Haskell
 Brake H. Perrot
 Brake mechanism (3 pats.) T. I. Duffy
 Brake mechanism, Automatic W. B. Thomas
 Brake mechanism for motor vehicles T. I. Duffy
 Brake-operating apparatus E. K. Conover
 Bread cutter, Altar M. Mighirian
 Bridle bit W. H. Niemann
 Brooders and incubators, Heating system for sectionalized H. Hohoff
 Broom-corn-evening machine H. H. Curtis
 Broom-head holder W. M. Christopher
 Brush, Pneumatic I. Chaimovitch
 Buffing machine F. A. Thurston
 Building R. O. King
 Burglar alarm J. F. Jensen
 Buttonhole guide clamp J. T. Auger
 Buzz ball B. E. Daniel
 Cableway, Marine T. S. Miller
 Calculating machine H. E. Goldberg
 Calling key, Selective M. F. Geer et al.
 Can opener J. M. Purdy
 Caoutchouc and making same, Substance similar to K. Delbruck et al.
 Caoutchouc-like material, Manufacture and production of a K. Delbruck et al.
 Capsules, Apparatus for the manufacture of B. W. Scott
 Car coupling L. G. Miller et al.
 Car coupling, Automatic release J. H. McElroy
 Car door J. F. Comee
 Car end underframe C. S. Shallenberger
 Cars, Mounting of engines in motor W. H. Frost

- Carbureter W. Patterson et al.
Carbureter for internal-combustion engines R. Shipman
Carbureter-regulating mechanism J. C. Carpenter
Card frame or mount O. C. Schwarz
Card record, Safety W. L. Vance
Cards, Playing L. A. Ely
Carriage, Folding child's A. T. Wannenwetsch
Carton-folding and stitching machine R. H. Brown
Case-hardening material H. Rodman
Case-hardening material, Making H. Rodman
Cash register (Reissue) R. T. Piscicelli
Cashier, Mechanical (Reissue) E. S. Church
Castle guard F. D. Hagan
Cement and making same, Water resistant C. Ellis
Check protector L. M. Todd et al.
Checking and recording receipts and the like, Apparatus for J. B. Thorn
Cigar display holder E. Brunhoff
Cigar lighter O. G. Kluge
Cigar-mold-pressing device F. M. Shirley
Circuit closer, Thermal (2 pats.) J. F. Scheuer
Clocks, Dash lock for automobile W. E. Porter
Closet seat, Sanitary E. O. Edwards
Clothes rack I. T. Richardson
Clutch, Friction E. A. Ford
Cocoa, Treating H. B. Hunter
Coffee, spice mills, and the like, Feed-regulator for P. Runkel
Coin assessor E. Harralson
Coin collector W. F. Horsford
Coin package R. P. Wilton
Coin packer W. H. Young et al.
Collar fastener and necktie-guiding device, Combined W. Birdsall
Combination lock M. Tamburini
Commutator-truing device F. G. Ludwig
Compo board M. K. Armstrong
Composing machine, Typographical J. R. Rogers
Composition of matter and making the same B. B. Goldsmith
Compound E. W. Hill
Compressors, Governing mechanism for centrifugal R. Troger
Concrete and similar structures, Reinforcing bar for W. C. Coryell
Condenser and feed-water heater, Combined M. L. Dunnam
Condenser, Steam F. Samuelson
Container E. Schierse
Control system C. C. Heinzmann
Cooking device L. Mendez
Cooling device H. Hale
Core for the manufacture of cement and cement-lined pipes G. W. Priest
Cotton-chopping machine W. M. Roberts
Cotton, &c., Device for feeding J. C. Potter
Cotton-picking machine P. P. Haring
Coupling-rod extension S. K. Dickerson
Crane or the like C. H. Tucker
Crate, Foldable E. T. Bond
Crate, Seed-corn and grain A. F. Howden
Cultivator C. R. Benefield
Cultivator frame, Traction W. A. McKinney
Current motor F. H. Crago
Currycomb N. W. Price
Cuspidor, Sanitary K. Fousek
Cycles and the like, Saddle for motor A. E. Loweuthal
Dampening machine G. Binder
David, Boat J. Roever
Defibrating machine J. A. Allen
Defibrating machine J. P. Richardson
Demountable wheel T. I. Duffy
Dental appliance holder E. W. Clinchard
Dental instrument F. T. Wallen
Desk, Adjustable school H. Harris
Die block W. R. Forsyth
Dipper for steam shovels and dredges C. Butler
Disconnecting switch A. J. Pahl
Display case C. W. Kress
Door check and closer J. Gerard
Door-operating mechanism D. Morgan
Door-operating mechanism W. M. Simmons
Doors, gates, and the like, Means for opening D. Marshall
Doubletree J. A. Reid
Doubling and winding machine J. Pagerie
Dough or bake-shop products, Treating C. Striz
Dough-shaping implement E. Mitschler
Draft equalizer V. J. Tichota
Drill R. L. Barnum
Driving mechanism (2 pats.) J. R. Gammeter
Dust-pan attachment G. H. Wartman
Dye of the anthraquinone series, Yellow wool P. Thomaschewski
Dye, Vat P. Thomaschewski
Dyeing machine W. M. Morris
Dyestuff, Brown azo K. Schirmacher et al.
Earthworking tool, Motor-driven rotary H. F. D. Schwahn
Electric brake J. N. Mahoney
Electric element, Thermo A. L. Marsh
Electric fixtures, Fastening device for C. W. Bihler
Electric furnace I. Rennerfelt
Electric indicator and steam-flow meter, Combined J. Wilkinson
Electric vapor apparatus E. Podszus
Electrical connection P. E. Gillings
Electrical indicator S. B. Moscovitz
Electrical taps or outlets, Support for J. Sachs
Electrocapillary contrivance A. Orling
Electrode, Cataphoric D. E. Kerr et al.
Electrode holder J. Orr
Electrode lead C. A. Kraus et al.
Electromagnetic device S. C. Bryant
Electromagnetic separator E. Langguth
Electromagnetic switch, Automatic J. N. Reynolds et al.
Elevator-guide shoe G. Dunlap
Elevator-safety device O. Volz
Embroidery machines, Tambour-frame-operating mechanism for G. Hubner
Engine-starting device, Explosive J. O. Hobbs
Engine-steering device, Traction W. S. Williams
Engines, Fuel pump for internal-combustion H. Lemp
Engines, Spark plug for explosion F. C. Walsh
Evening, Four-horse A. Hallstrom
Exhaust silencer F. G. Hall, Jr.
Exhaust silencer, Open C. F. M. Galaine
Expansion bolt C. B. Van Antwerp
Expansion bolt J. H. Hubler et al.
Explosive engine J. Todd
Fabrics, Craping G. E. Schultz
Fare box G. B. Kohler
Fastener supplying and delivering mechanism G. Goddu
Fastening inserting machine G. Goddu
Feeder, Poultry automatic water J. H. Crowell
Feeder, Time-controlled stock C. Daminaitis
Fence post W. A. Swim
Fermentation vessels, Treating large H. Held
File J. Beche
File folder, Vertical M. B. Jackson
Filing cabinet, Unit J. Hatfield
Filing cabinets, Body construction for metal A. H. Schaffert
Film holder, Magazine S. Cocanari
Filter, Water E. C. Steele
Fire alarm and watch-service signaling means J. McFell
Fire escape C. Scheiden
Firearm, Electric A. Tepins
Fireproof floor construction E. V. Johnson
Fish plate A. Lodge
Fish screen A. J. Collar
Fluid-flow meter (2 pats.) H. H. Mapelsden
Fluid motor W. E. and M. Marshall
Fly wheel J. C. R. March
Flying machine J. G. A. Kitchen
Flying machine V. M. Osborn
Flying machine W. L. Quick
Fodder-binding device C. P. Baker
Folding case E. B. Story
Food product, Making a F. Prevost
Frequency indicator W. H. Pratt
Friction transmission mechanism L. D. Ryan
Fruit-grading apparatus R. H. Peacock
Frying pan C. W. Smith
Furnace W. W. Case, Jr.
Furnace front J. H. Hume
Furnace port A. W. Allen
Furnaces or the like, Agitating device for roasting M. V. M. de Lumen
Furnaces, Regenerator for metallurgical T. L. Holle
Game apparatus B. H. Van Aukeu
Game, Card W. Maidens
Garment C. M. Nicholson
Garment M. Langman
Garment, Combination O. M. Potterf
Garment shield, Sanitary A. Voss
Garment-supporter trimming E. N. Humphrey
Gas-burning furnace J. E. Bell
Gas generator T. H. Armstrong
Gas-generator washer, Producer P. G. Schmidt et al.
Gas-mixing device F. A. Heath
Gas-purifying apparatus W. Schwarz
Gas regulator (Reissue) W. R. Park
Gate F. J. Matey
Gate-opening mechanism, Automatic J. McMillan
Gear-shifting, Lever mechanism for C. W. Gerhart
Gearing T. I. Duffy
Glass-grinding apparatus J. Allsopp
Gold-leaf substitute F. Demel
Governing mechanism for prime movers E. Cox
Governor, Emergency J. Wilkinson
Grab and tie-spacer, Combination W. P. Turner
Grass catcher W. Boss
Grease-cup plug J. W. Parrish
Grinding trombone slides, Machine for F. Holton
Gutter hanger E. J. Hiller
Hammer, Power J. I. Depew
Hanger bracket C. C. Korn
Harrow attachment A. Smith
Harvester, Beet J. Duval
Hat pin D. Cutler
Hay loader C. R. Davis
Headlight, Dirigible F. H. Aubeuf
Heat alarm, Automatic J. G. Schluchter
Heating systems, Means for regulating steam L. C. Ord
Heeling machine, Spring W. S. Foster
Hinge, Concealed door F. A. Ledward
Hinge, Non-projecting J. R. Angelovich
Hinge, Spring M. Furuya
Hook and eye A. P. Fulmer et al.
Horn, Electric G. M. Willis
Horseshoe W. McKeage
Horseshoe, Supplemental A. and N. Bernstein
Horseshoes, Detachable creeper for H. F. Kuhlmann
Hose coupling A. B. Lemon et al.
Hose nozzle E. Kupferle
Hose supporter C. E. Matthes
Hose-supporter loop S. Buyer
Hosiery D. O'Donnell
Hot-air furnace E. C. Kent et al.
Hothouse, Movable A. Pullen-Burby
Hub for demountable wheels T. I. Duffy
Hydrocarbon burner, Fluid E. L. Reynolds
Index holder, Card C. E. Campbell
Indicator J. Wicklund
Injector R. D. and J. C. Metcalfe
Ink fountain A. B. Carty
Insect trap, Electrocuting H. B. Clarke
Insoles, Trimming E. L. Keyes
Insulation of slasher cylinders A. W. Thompson
Internal-combustion engine W. J. Wright
Internal-combustion engine C. F. Lembke
Internal-combustion engine H. Lemp
Internal-combustion engine L. Wygodsky
Internal-combustion-engine tool J. A. Heany
Irrigating and ditching machine, Reversible S. C. Hanna
Jacquard connection W. R. Scott
Jacquard connection for weaving mechanisms W. R. Scott
Kinematographic apparatus T. H. Bolam et al.
Knickerbockers, Contracting band for D. Gamble
Labeling machine, Can O. C. King
Lamp (Reissue) B. J. Lutwyche
Lamp burner E. B. Moore
Lamp, Electric safety E. Gottschalk et al.
Lamp socket J. Daryl
Lamp socket, Cluster C. H. Bissell
Lamp-supporting and operating means J. D. Stow
Lamps, Wall support for bracket T. Lemirand
Lantern, Tubular A. L. Edwards
Lathe attachment, Buffing C. Conner
Leaf holder, Loose J. R. Haldeman
Leakage-reducing device F. Schultheiss
Lens, Fresnel W. Churchill
Letter-sheet and envelope, Combined R. E. Euwer
Leveling-machine jack E. Woodward
Lever, Hand W. E. J. Anderson
Lighting fixture E. F. Guth
Line-casting machine G. P. Kingsbury
Line-casting machine R. O. Boardman
Liquid-fuel furnace G. Ayres
Liquid-level apparatus, Vacuum-controlled differential E. P. Noyes
Litter carrier F. H. C. Stoll
Lock I. Lapidus
Locker E. J. Lawrence et al.
Locking device G. H. Daughtrey
Locking device for drawers of cabinets E. Stuck
Lock or fastening for railway and other carriage doors and the like J. Bithell
Locomotive H. G. Chatain
Locomotive draft appliance C. J. Mellin
Locomotive frame S. M. Vaclair
Locomotive pilots and footboards, Connecting means for S. E. Tout
Loom shuttle or filling carrier O. A. Sawyer
Looms, Power-gauge device for picker sticks of F. M. Lamb
Mail-bag fastener I. L. Hood
Manhole structure T. F. O'Day
Marine propulsion apparatus A. Nydegger
Massage instrument H. Dreuw
Matrix-setting and line-casting machine H. Degener
Measuring device, Wall paper R. B. Harpster et al.
Mechanical movement W. H. Whitehead
Metallic bands, Apparatus for the manufacture of J. B. McGibbin
Mirrors and the like, Holder for J. Sartori
Moistening device J. W. Kinney
Molder article and making the same A. H. Krieger
Mop wringer L. C. McNeal
Necktie holder J. D. Houck
Noodle cutter T. Lombardi
Nut and pipe wrench, Combined F. Manier
Nut lock J. A. Bryant
Nut lock P. Schroeder
Nuts, Making hexagonal F. L. Tideman
Oil burner L. B. Strow et al.
Oil tank, Knockdown O. W. Maloney
Oiling attachment, the axle of wheels A. Nelson
Optical projection apparatus A. T. Thompson
Ore separator H. J. Stewart et al.
Ore-treating machine M. Quenner
Organs, Electropneumatic swell-pedal action for pipe E. M. Skinner
Outing suit, Woman's F. Bolton
Package-forming means C. W. Dohm
Packing and making same W. R. Haggart
Packing box G. J. Leavitt
Packing for stuffing boxes F. S. Hirschfeld
Packing, Piston G. Christophersen
Paper-winding machines, Mandrel for G. B. Warner
Pasteurizing apparatus L. S. Pfouts
Peroxide of hydrogen, Compound for making C. B. Jacobs
Phosphorites, Converting H. V. Dunham
Photographic apparatus, Flash-light C. D. Allen
Photographic shutters, Driving and braking device, or releasing device for C. Weber
Pick, Miner's J. P. Craven
Pile, Tereoprop P. N. Stankovich
Piling, Integral sheet C. C. Conkling
Pipe construction, Corrugated M. J. McMartin
Pipe cutter I. W. Nonneman
Pipe flanging J. H. Manning
Pipe-flanging machine J. H. Manning
Pipe joint, Locomotive exhaust J. J. Jones
Piston for engines G. T. Strite
Planimeter L. A. Sheldon
Planter, Check-row R. I. Foreman
Planter, Corn F. P. Murphy
Planter, Corn and cotton M. and S. Robinson et al.
Plate, Protecting O. M. Druse
Plow and harrow, Combined D. B. Rohrer
Plow, Boltless moldboard and landside C. W. McWane
Plow point, Boltless C. W. McWane
Plumb bob J. Gambillee
Pocket, Inside coat J. Arenson
Potato digger W. H. Rice
Press J. H. Crowell
Press-cloth stripper O. R. Bousse
Press-feeding means, Pneumatic J. Duvall
Pressing machine R. Tannenbaum et al.
Printing machine E. E. Strawn
Printing-plate-finishing mechanism, Stereotype (Reissue) H. A. W. Wood
Printing-plate reinforcement C. M. Letz
Printing press, Proof R. O. Vandercock
Projectile for rock breakers M. Quenner
Projectiles, Cap for armor-piercing R. A. Hadfield et al.
Pulley H. P. Reston
Pump R. Sprado
Pump H. Mead
Pump, Air L. B. Sherwood
Pump for elastic fluids K. Steinbecker
Pump for supplying fuel to internal-combustion engines W. H. Lemp
Pump holder W. L. Deming
Pump, Rotary B. F. Catheart
Radial drill W. T. Sears
Radiator G. E. Farlinger
Radiator H. C. Harrison
Radiator-cell structure H. C. Harrison
Radiator cells, Hexagonal construction of H. C. Harrison
Radiator section H. C. Harrison
Radiothorium, Preparation of L. Meiner
Rail anchor H. Jenkins
Rail anchor E. J. Frazar
Rail and road-bed construction C. W. Clarke
Rail joint W. T. Supp
Rail tie and anchor F. H. Stanford
Railway and electric-motor control, Electric H. W. Leonard
Railway crossing G. O. Bristow
Railway gate C. Canova
Railway rail J. R. Calder
Railway-rail fastener C. C. Mitchell
Railway signal system D. Dale
Railway signaling system A. L. Vencell
Railway splice C. M. Miller
Railway-switch-operating means C. Phillips
Railway system and handling traffic A. L. Drum
Railway tie H. L. Hollis
Railway-traffic-controlling system F. L. Dodgson
Raking and loading material such as hay and the like, Machine for J. Rochoix
Razor, Safety E. N. Humphrey
Razor, Safety I. Kaufmann
Razor, Safety (2 pats.) E. N. Humphrey
Recording device E. S. Votey
Refrigerating apparatus F. W. Wolf, Jr. et al.
Resilient wheel W. Wheeler
Reversible fork and rake T. J. McIntosh
Revolving ventilator O. W. Searey
Rim, Demountable W. F. Jenkins
Rock breaker M. Quenner
Rock drill G. W. Smith
Rod bender R. Sample et al.
Roof light A. Klein
Roofing, Leak-proof strip for metal K. Roth
Roofing material, Fastener for sheet W. N. Nicholls et al.
Rotary drill L. A. Owens
Rubber-like substance and making same H. A. Clark et al.
Sacking-machine jolter C. Bordier
Sad-iron handle C. P. Eichler
Sash lock L. R. Eddy
Sashes and the like, Apparatus for supporting window J. B. Murphy
Saw-filing machine G. W. and L. W. Guin
Scaffolding bracket E. M. Clark
Scale, Weighing H. Cummer
Seal-locked can E. Tyden
Seal-locked can (2 pats.) E. Tyden
Sewing machines, Welt-guide mechanism for welt shoe A. Eppler
Shade holder, Heavy W. P. Cartwright
Shades, reflectors, and the like, Holder for M. P. Stevens
Shingle F. H. Grant
Shingle, Metal O. F. Jacobson
Ship J. C. Schleicher
Ship construction P. Briones
Ships, System of construction for steel S. Holmes
Shirts, blouses, and the like, Neckband of S. Lever
Shoe-polishing device T. A. and L. T. Smith
Shoe-polishing machine A. H. R. Heller
Shoe-stiffener blank W. B. Arnold
Show case R. G. Bullock
Show-case construction I. W. Miller
Shutter, Window J. Lockhart
Sign G. J. B. Rodwell
Sign, Advertising C. B. Ulrich
Sign, Illuminated P. L. Ferguson et al.
Signal system, Elevator N. L. Schloss
Signaling system, Selective J. McFell
Sile and building-tile therefor J. Merley
Skid, Reversible R. P. Martin
Skirt, Reversible S. F. Juda
Slag products, Manufacturing C. H. Schol
Slitting and rewinding machine J. A. Cameron et al.
Snap, Lock-spring safety S. W. Reynolds
Sound insulation C. R. Stedman
Sound-reproducing machines, Automatic stopping device for H. C. Miller
Spanner wrench T. I. Duffy
Sparkling plugs, Testing installation for electromagnetically-operated G. Honold
Spear W. R. Hepner et al.
Spiral casing W. M. White
Spout, Dispensing W. M. Tilghman
Spring equalizer system W. W. Pitts
Spring motor H. L. Pitman
Spring structure G. C. Shoemaker
Square J. M. Brown
Stackers, Feeding attachment for pneumatic J. W. Plummer
Stamp, Time J. Alsenz
Stationery J. Rindsberg
Steil H. B. Phillips
Stopper for bottles, jars, and the like G. H. Jones
Storage battery W. A. Crowds
Stoves when overturned, Attachment for extinguishing oil K. L. Stendahl
Street-sprinkling device S. McCutcheon
Sulphite-pulp process, Reclaiming system in a superheater C. B. Thorne
Superheater J. Primrose
Suspender coupling or clasp W. W. Wolfe
Suspender end O. G. Rust
Suspenders (2 pats.) F. W. Mally et al.
Swing and bed, Combination J. C. Goodman
Syringe J. J. Holland
Syringe, Dilating A. L. Miner
Tahle lock, Extension E. Tyden
Talking machine H. B. Babson et al.
Talking machine, Disk R. Preszter
Telephone-exchange systems, Automatic switch for E. E. Clemeut
Telephone transmitter W. Kaissling
Theater stage S. M. Keyte
Thread-cutting tool B. Borden
Ticket holder B. N. Van Fleet
Tide motor P. Hale
Time-control apparatus A. Pach
Tire, Automobile C. Krikava
Tire, Cushion C. M. Culp
Tire shoe A. S. Bullock
Tire valve F. B. Carlisle
Toaster W. A. Henry
Tool, Combination B. J. Cook
(Continued in February Number)

The Most-Valuable Techno-Chemical Receipt Book Published

Henley's Twentieth Century Book of RECIPES FORMULAS AND PROCESSES

Edited by GARDNER D. HISCOX, M. E.



Price, \$3.00 Cloth Binding \$4.00 Half Morocco Binding

800 large Octavo (6 x 9½) Pages.

Contains over 10,000 Selected Scientific, Chemical, Technological,
and Practical Recipes and Processes, Including Hundreds of
so-called Trade Secrets for every business.

To present here even a limited number of the subjects which find a place in this valuable work would be difficult. Suffice to say that in its pages will be found matter of intense interest and immeasurable practical value to the scientific amateur and to him who wishes to obtain a knowledge of the many processes used in the arts, trades and manufactures, a knowledge which will render his pursuits more instructive and remunerative. Serving as a reference book to the small and large manufacturer and supplying intelligent seekers with the information necessary to conduct a process, the work will be found of inestimable worth to the Metallurgist, the Photographer, the Perfumer, the Painter, the Manufacturer of Glues, Pastes, Cements, and Mucilages, the Compounder of Alloys, the Cook, the Physician, the Druggist, the Electrician, the Brewer, the Engineer, the Foundryman, the Machinist, the Potter, the Tanner, the Confectioner, the Chiropodist, the Manicure, the Manufacturer of Chemical Novelties and Toilet Preparations, the Dyer, the Electroplater, the Enameler, the Engraver, the Provisioner, the Glass Worker, the Goldbeater, the Watchmaker and Jeweler, the Hat Maker, the Ink Manufacturer, the Optician, the Farmer, the Paper Maker, the Paper Mower, the Wood and Metal Worker, the Veterinary Surgeon, the Veterinary Surgeon, and the Technologist in general.

Among the Recipes given are:

Bleaching, Etching and Engraving
Recipes for Glass Making, Paper Making
Recipes for Ointments
Mirror-Making Formulas
Paint Making Formulas
Gilding and Galvanizing Recipes
Bronzing, Tinning and Silvering Recipes
Recipes for Adhesives
Plating and Enameling Recipes
Cleaning Processes, Soap Making
Leather and its Preparation
Recipes for Alloys, Recipes for Solders
Photographic Formulas
Shoe Dressing and Stove Blacking Recipes
Rust Preventive Recipes

Recipes for Lubricants and Oils
Recipes for Dyes, Colors, and Pigments
Recipes for Dryers and Inks
Recipes for Artificial Gem Making
Jewelers' and Watchmakers' Recipes
Household Formulas
Waterproofing, and Fireproofing Recipes
Recipes for Cements, Glues, Mucilages
Recipes for Fireworks
Alcohol and its uses
Recipes for Essences and Extracts
Dentifrice, Cosmetic, and Perfume Recipes
Tanning Recipes
Metallurgical Formulas
Hair Restorers, and Depilatories

And many thousands more—Equally Important in the Arts and Manufactures

Address: THE INVENTIVE AGE Publishing Co., Washington, D. C.

A GREAT BARGAIN \$1.75 Value for \$1.00

One Year's Subscription for McCall's
Magazine, Any 15-Cent McCall
Pattern you may select, One
Year's Subscription for
The Inventive Age.

ALL FOR ONLY



\$1.00



McCall's Magazine

Is a large, artistic, handsomely illustrated hundred-page monthly magazine. It contains sixty new Fashion Designs in each issue. Every woman needs it for its up-to-date fashions, entertaining stories and complete information on all home and personal topics. Over one million subscribers. Acknowledged the best Home and Fashion Magazine. Regular price, 5 cents a copy. Worth double.

McCall Patterns

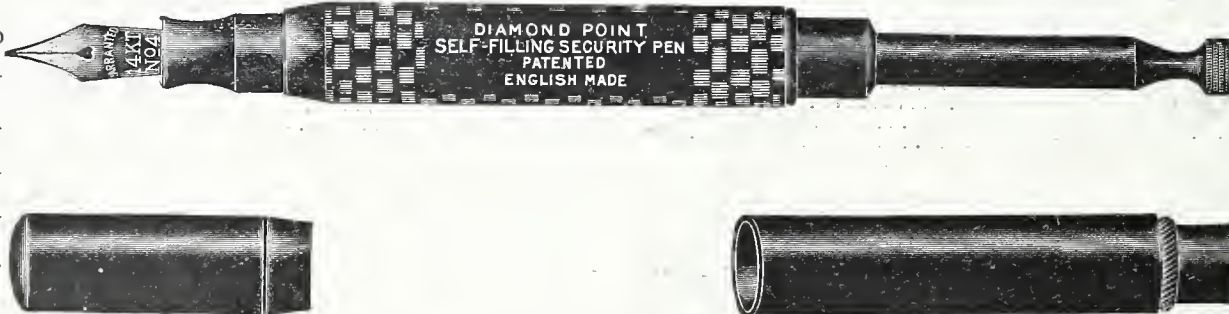
Are so simple you cannot misunderstand them. Absolutely accurate. In style, irreproachable. You may select, free, any McCall Pattern you desire from the first number of the magazine which reaches you. Regular price, 15 cents.

The Inventive Age.

A journal of manufacturing industry and scientific progress. The indispensable paper for patentees. Contains matter and information not found elsewhere. Regular price, \$1.00 per year.

The DIAMOND SELF-FILLING AND SELF-CLEANING Fountain Pen.

IT IS AWAY AHEAD
OF ANY OTHER PEN
MANUFACTURED BE-
CAUSE OF ITS SELF-
FILLING AND SELF-
CLEANING FEATURES.



No Soiled Fingers.

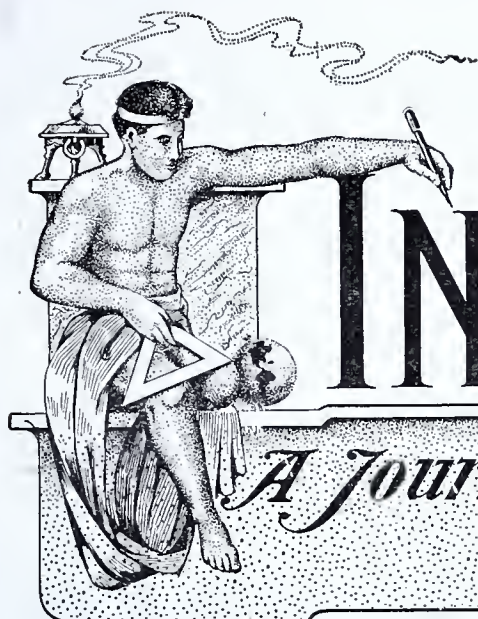
No Lost Time.

Price \$2.00.

Including one year's
subscription to "The
Inventive Age."

Address--- INVENTIVE AGE PUB'L. COMPANY, WASHINGTON, D. C.

SEND FOR OUR FREE CATALOGUE OF BOOKS FOR
INVENTORS AND MECHANICS.



The

INVENTIVE AGE

A Journal of Manufacturing Industry and Scientific Progress.



VOL. XXVI. NO. 2. }

WASHINGTON, D. C.---FEBRUARY, 1914.

Single Copies 10 CENTS.
ONE DOLLAR A YEAR.

A UNIQUE ROTARY GAS PRODUCER.

By FRANK C. PERKINS.

THE accompanying illustrations show the details of construction and method of operation of a novel rotary gas producer as developed at Mount Vernon, Ohio.

It may be stated that there are three distinct steps in the operation of any gas producer:—the spreading of the coal, the agitating of the fire, and the withdrawing of the ash. This rotary gas producer of the furnace type, by one motion continually exerted in one direction, performs all the operations required for the complete manipulation of the coal, the fire and the ash. Each of these important steps is performed

ing the upper and power halves of the producer at different speeds. For the entire operation approximately one or two horsepower is required.

As will be seen the producer wall is built in two horizontal sections, which revolve independently of each other. The lower half extends from the ash pan up to the hottest zone of the fire bed; the upper half starts at the hottest zone of the fire bed and extends up to the stationary top of the producer. These sections revolve continuously, the speed of the upper being from two to four revolutions per hour, while the lower one revolves very much more

bed arches across from wall to wall in layers of zones, which are completely self-sustaining. Since the mass of fuel in a producer is sustained in a larger degree by the walls than by anything else, the simplest method of agitation is the independent rotation of hori-

the fuel must also be spread over the fire bed. This problem is made more difficult by the fact that sometimes conditions demand an uneven distribution of the fuel. Depressions frequently occur in the top of the fire bed. If the top is to be kept level, more

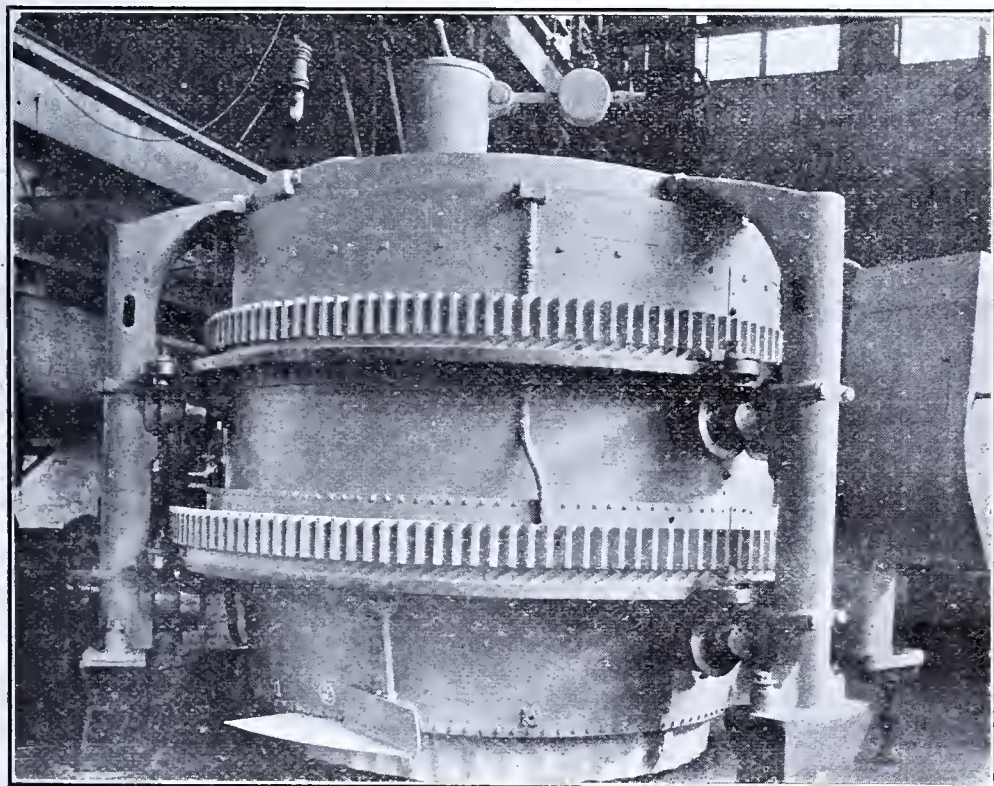


FIG. 1.—A USEFUL ROTARY GAS PRODUCER.

mechanically by three distinct features of this rotary gas producer; the automatic feeding and spreading of the coal, simultaneous agitation of the entire fire bed, and continuous ash grinding and discharge. These results are all obtained by slow rotary motion exerted in one direction, viz; revolv-

slowly. These moving walls cause the entire fuel and ash bed to rotate in two distinct sections, the upper portion rubbing over the lower.

In a gas producer, the fuel bed is sustained, not by the grate or whatever may be directly beneath it, but by the walls of the producer. The fuel

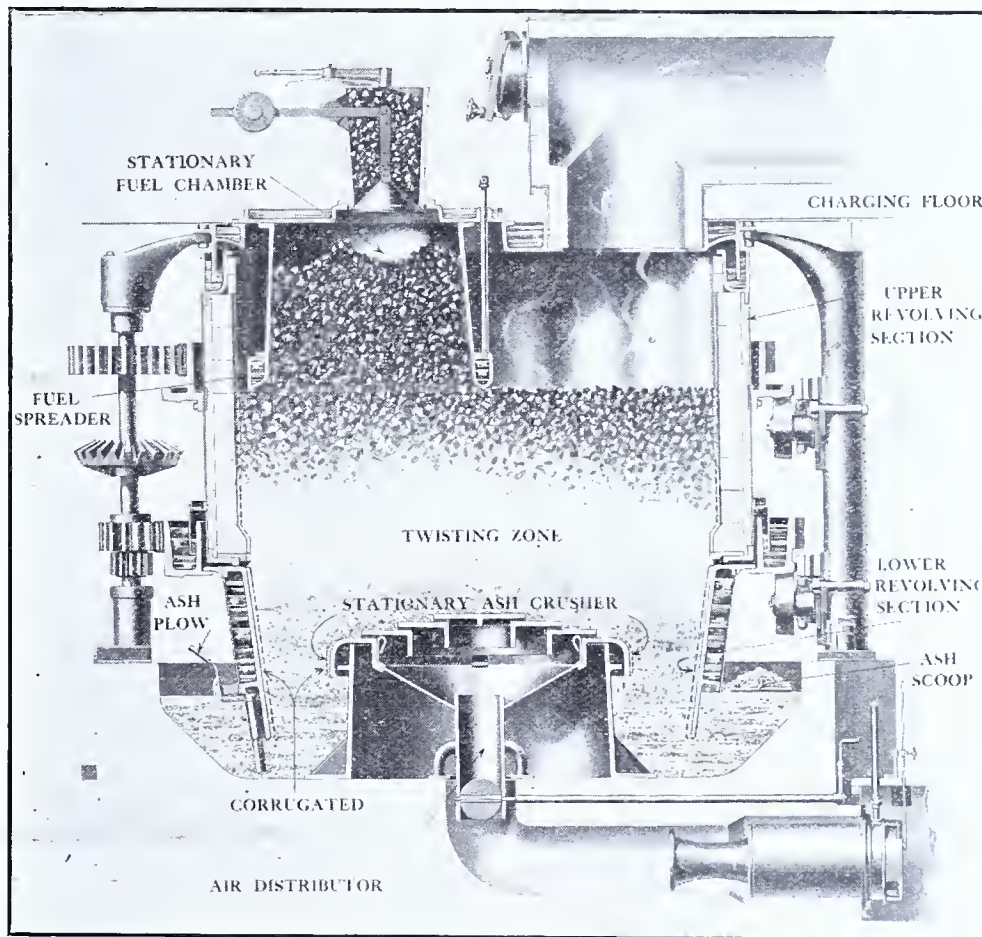


FIG. 2.—DETAILS OF CONSTRUCTION OF A ROTARY GAS PRODUCER.

zontal sections of the walls, which would necessarily carry with them the fuel they enclose and support.

In many tests on various kinds of bituminous coal, it has been demonstrated that "twisting" the fuel bed by means of two revolving horizontal sections of the producer walls provides adequate agitation throughout the fire bed.

It is pointed out that it is not enough to simply feed a producer with coal;

coal must be deposited in these depressions than is spread over the rest of the surface. This is of the utmost importance in producer operation, as upon the constant depth and density of the fuel depend the quality and uniformity of the gas.

It will be noted that there is attached to the top of the producer a stationary chamber, extending down over a section of the rotating fire bed. This chamber is kept full of fresh coal. As

it has no bottom, the coal it contains rests directly upon the revolving fire bed beneath it. As fast as the coal in the fire bed is gasified, the depressions thus produced in the surface of the fire are filled up by the coal, which works down automatically from the fuel chamber. Thus, the fuel bed is kept at a constant level.

The lower edge of the fuel chamber is water cooled to prevent over-heating and wearing away, and is beveled, so as to produce a down stroking effect upon the fire bed. This helps to prevent the formation of crevices in the top of the fire bed, and overcomes any tendency which the surface of the coal may have to cake.

A unique feature of this fuel chamber is that it forces the gas given off from the fresh coal to pass down through the hot fuel at the bottom of the chamber before escaping to the outlet. Much of the tar and soot in the fresh coal is thus gasified in the producer instead of being deposited in the flues.

It is held that the most difficult problem in the gas producing operation is the elimination of clinkers. Clinkers have their beginning in the "hot spots" which form around blow holes. If blow holes can be eliminated, there will be no "hot spots" and the formation of clinkers will be to a large degree prevented. The rotary gas producer prevent the formation of blow holes by revolving the upper part of the fire bed over the lower, which sets up a twisting action throughout the whole fire bed, shearing off the small holes as fast as they start to form, thus effectually preventing the formation of chimneys or large blow holes.

It is maintained that having eliminated excessive temperatures in spots, it becomes possible to keep the temperature of the whole fire bed up to a high working average. This permits the fire bed to operate continuously at its maximum capacity. In hand-poked producers, the capacity is usually ten to twelve pounds of coal per square foot of fire area per hour. As a result of the high uniform temperature at which the rotary gas producer may be operated, twenty-five pounds of coal may be gasified per hour per square foot of fire area, and at the same time much better results are obtained than in the hand-poked producer.

In older types of producers, the ashes are removed by hand, with a bar, a hook and a long handled shovel. It requires considerable skill to remove the ashes evenly from all portions of the ash bed, and it is seldom well done. Moreover, if there are any clinkers, it requires considerable time to break them into small enough pieces so they can be removed.

In the rotary gas producer, the ash is removed automatically and continuously. The first step in mechanical ash removal is the breaking up of the ash to an approximately uniform size. This is an important point, as ash containing large chunks of uneven size cannot be removed uniformly. The breaking up of the ash is accomplished by a combination ash crusher and tuyere hood. This is a large stationary box in the center of the revolving ash bed. The ashes are

broken up and ground between the revolving corrugated walls of the producer and the stationary corrugated wall of the ash crusher.

There are three ash plows evenly spaced around the bottom of the lower revolving section. These plows project to the bottom of the ash pan, and revolve with the lower section of the producer. They are easily adjustable while in operation, and work continuously, raising the ashes to the level of the ash shelves, which are also attached to the lower section of the producer, and revolve with it. The ash shelves carry the ashes to the point from which they are automatically scraped into an ash pit or ash car, as the case may be.

There are three of these producers, of the type shown in photograph Fig. 1, in operation at the Consolidated Works of the American Steel & Wire Company in Cleveland. The ten foot producers have been operating at from fifteen to twenty-five tons for 24 hours, while the average of the three in Cleveland has been but sixteen tons, due to the fact that more gas has not been required. The average of an apparatus in Youngstown has been approximately twenty tons while at both plants when occasion demanded it, 27½ tons were gasified in 24 hours.

It is stated that the temperature of the gas leaving the producers has been exceptionally low, averaging from 1000 to 1200 F. in place of the usual temperature of 1400 to 1600. This is due to the fact that the fuel bed in these producers is about twice as deep as that carried in the ordinary producer, and is free from blow holes. A proof of the absence of blow holes is seen on looking through the peek holes in the top of the producer. Instead of only a swirling mass of dull smoky flame being visible, as is customary, the outline of the top of the fire bed may be distinctly seen at all times. If there were blow holes through the fire bed, some of the gas would burn on top and raise the temperature of the outgoing gases.

It is claimed that an extremely small amount of soot is formed or deposited in the flues. The accumulation in the bottom of the 32-inch diameter nozzles leaving the producers has been about four inches per week, i. e. from one-sixth to one-tenth of the amount ordinarily made in gas producer practice. The flues have not to be cleaned out oftener than once in two weeks. Most of the cost of flue cleaning has been eliminated, and the expensive delays in operation of the plant, on account of the flues filling with soot, have been stopped altogether. Also, because of the use of a system of blowing the flues, while in operation, with compressed air, the amount of Sunday work required has been eliminated almost completely.

It is maintained that the uniformity of the gas as it comes to the furnace, and also its freedom from soot, (which enables the heater to see distinctly the material in the furnace,) makes it possible to maintain a much more uniform heat, and the quality and hence quantity of the output of the furnace has been very materially bettered.

The heaters, who heretofore have had to change their gas regulating valves several times an hour, have been able to go for hours at a time without once touching them.

It is pointed out that one of the greatest values, if not the greatest of this producer, is that it makes possible a larger tonnage and a more uniformly perfect output from the mill. The saving of labor in operating the producer, in handling the ash and in cleaning the flues, and the saving in the amount of coal used owing to the higher efficiency of the gasification, while they are all very considerable, are not more important than the economy in the mill, due to the uniformity of the gas, and its greater cleanliness and adaptability.

BOOK REVIEWS.

STEEL.

Its Selection, Annealing, Hardening and Tempering.

By E. R. MARKHAM.

The Norman W. Henley Publishing Co. N. Y.

This is a new edition of a book formerly known as *The American Steel Worker*. The rapid progress made in American steel manufacture and treatment with the constant improvement and invention of new processes and special steels, has led to a revision of the volume and the issue of the present edition, which contains numerous additions regarding recent methods of treatment of steel. The advent of the automobile, the modern gas engine and the aeroplane has brought about a demand for extremely tough, strong, high grade steels. The exact composition of these new steels is usually held as a trade secret by the manufacturers, but in some cases information has been furnished that is embodied in this volume. For automobile and other special uses these alloy steels (known to the trade as tungsten, vanadium, chrome and nickel steels) have proved of inestimable value. A brief account is given of the more important points of annealing, hardening, tempering and case-hardening of modern steels, with such data and specifications of their strengths, compositions and properties as can be ascertained. It is a practical book for the machinist, tool maker, blacksmith, tool hardener or superintendent.

Saw Filing and Management of Saws.

By ROBERT GRIMSHAW, M. E.

The Norman W. Henley Publishing Co. N. Y.

This little book is intended as a practical aid to those who use saws for any purpose. While it treats principally of saw filing, it also goes into the questions of gumming, spring setting, and swaging. There is no more sense in using a dull saw than in shaving with a dull razor, and during many years' experience in using saws of every kind, many useful ideas have been developed, which are here set forth. It is a handy book for those who have charge of saws, as it deals with the proper shape and pitches of teeth, and also with the hammering and brazing of band saws, the speed, work and power to run circular saws, etc.

EXHIBIT OF TYPOGRAPHY.

Probably in no department of human enterprise is the great and general public more interested than in the processes of the daily press of the world. How the news is assembled, edited, "put to press;" how its editorial comments on the doings of humanity flow with more or less illuminative quality from the monster machines of rapid reproduction; how the gap is filled between the cub-reporter's maiden effort and the printed columns in the ink-wet paper purchased for a cent; how "the news" is on the street ten minutes after a fistic giant has conquered or fallen, or the "home team" has lost to the Athletics or the Giants, as the case and the locality may be; how, in short, the whirl of leaves that fall daily from the tree of information, rumor and knowledge, is assembled every twenty-four hours, are subjects and questions of never-failing interest to the casual observer, the layman, the expert, and even to the journalist who sees it done every day, but understands it not.

If this is true, and we believe it is, then there will be no quarter of the Panama-Pacific International Exposition more sought than that section in the Palace of Liberal Arts which will be devoted to the wonderful subject of "Typography." And when the nations of the world assemble at San Francisco, in 1915 to review the history of contemporaneous industry, it is already assured that they will learn much of the art which the name of Benjamin Franklin illumines and adorns.

The typographical display is classified in the exposition as "Group 29," and is inclusive of every department of that industry which prepares and prints the news. Here will be seen the conversion that makes pulp into endless sheets of white, rolled on spindles and weighing tons. From that blank stage in the evolution of a newspaper, to the folded and edited issue placed in the hands of the observer, every stage of the process will be revealed. Skillful engravers, linotype experts, lithographers, pressmen and all the other artisans employed on a metropolitan daily will be seen at their toil and will give life and animation to this department of the great exposition just as they provide life, animation and discussion to the world through their various vocations as newspaper men.

It is not, however, to be expected that the singular processes by which the editorials of our opposing political camps are conceived and born; nor by what dark methods uncomfortable but illuminative truth reaches the expression of print through a misplaced photograph or an impulsive confidence—it is not to be expected that these secrets will be revealed in the exposure of newspaper processes at the exposition; but everything pertaining to the assembling of the mechanical factors of a daily paper will be shown in operation, and the mystery as to how a paper is on the street with the story ten minutes after it had

happened will be cleared up through the display of lightning-like apparatus which seems to be able to think.

Also included in the exhibit of typography will be the latest thing in typewriters which sometimes endanger, and dictating machines, which oft times conserve domestic peace; ingenious devices for manifolded letters, addressing envelopes, duplicating all kinds of "copy" and all the processes by which man sets down what he thinks, will be found in this "newspaper row" at the exposition.

Under the classification of "Books and Publications" will be revealed the methods in use in preparing more permanent literature for public consumption, from the transient popularity of a "best seller" to the reprinting of the classics of ancient and modern literature, and the stolidities of philosophic speculation. Book-making, binding, stitching, embossing will be seen in the doing, and there will be also a section devoted to the "Graphic Art of Advertising."

Maps and apparatus for geography, cosmography and topography also come under this general head of "Typography." Results of statistical investigation, showing new methods of indicating them, will be found here, as also will be seen the latest methods of classifying and indexing data, letters or newspaper clippings.

Photography, with all the achievements of the "movies" and the color photographic expert, will also be found in the typographical department of the Palace of Liberal Arts, and will be the subject of a competitive examination from which the exhibitors from each country will hope to take home the grand prize.

Theodore Hardee, Chief of the Department of Liberal Arts, has recently returned from a trip through England, Europe and the United States in behalf of the exposition, and is more than pleased with the prospects of full and comprehensive exhibits in every avenue of industry which leads into the domain of Liberal Arts. He says that he finds producers all over the world fully alive to the importance of the opportunity afforded them for the display of their products, and a consciousness that the Liberal Arts are a tremendous factor in the world's progress, as evidenced by the fact that the total exports of these products by all countries exceed one billion dollars every year, or eight per cent. of the world's entire trade.

"In considering participation," says Mr. Hardee, "I find that manufacturers are inspired by a national patriotism no less than by their 'pride of productivity' and that they readily accept the truth of the argument that the nation under whose flag they are protected in their successful and peaceful pursuits has a right to their consideration in the matter of a display where all the nations will offer, for universal inspection, their finest contributions to the happiness, prosperity, peace and comfort of the people."

"I also find that this patriotic element is of greater influence, even, than the more selfish consideration attached to the fact that San Francisco will be the world's 'show case' in 1915, to which free space will be given to the worthy workers of the world."

REMARKABLE FRENCH MICRO-RADIOGRAPH OR X-RAY PHOTOGRAPH OF MICRO-ORGANISMS.

THE accompanying illustrations show some wonderful X ray photographs of micro organisms, taken by Pierre Goby, scientist of Grasse, France, in his laboratory at 5 Rue Victor-Hugo. These French micro-radiographs, or X-ray photographs of micro-organisms, show a great advance in the use of X rays for examining microscopic preparations.

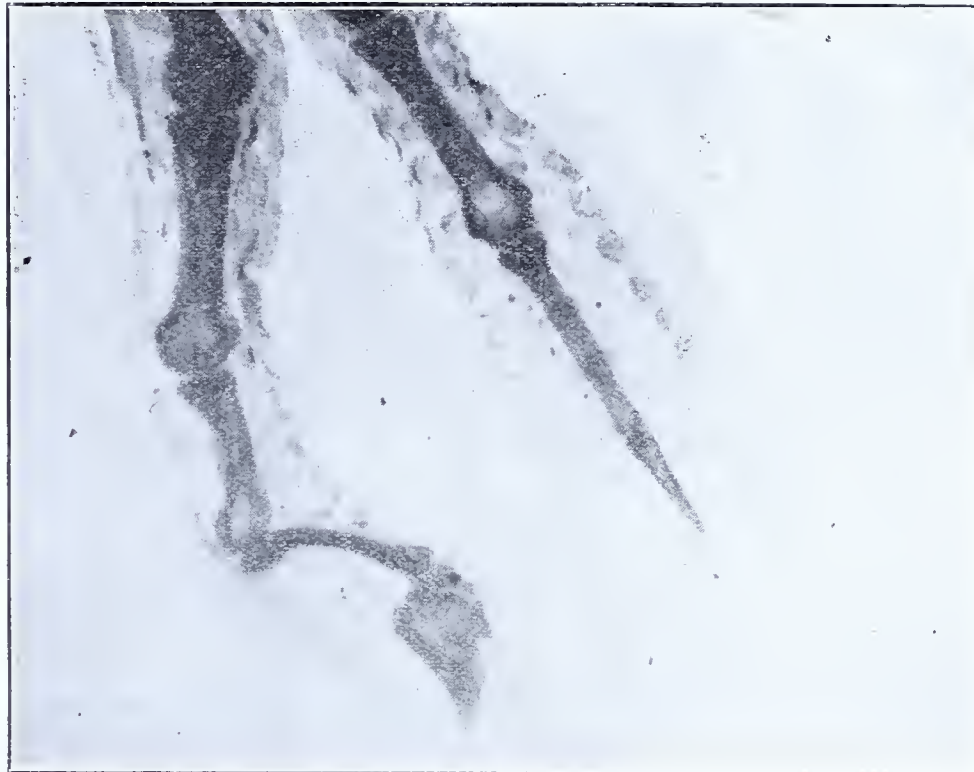


FIG. 1.—CLAWS OF LIZARD SHOWING DETAILS.

Dr. Goby with his apparatus has succeeded in removing many difficulties in the investigation of opaque microscopic preparations by radioscopy. It will be seen that the structure of the most primitive organisms, such as protozoa, and all kinds of foraminifera and similar microscopic bodies can be thus explained in detail.

It is of interest to note that Dr. Goby, who is a member of the Societe Francaise de Physique, has succeeded in ascertaining the existence of differences in species, when ordinary methods of investigation have indicated the existence of only a single species. Sea sand contains fossil remains of all sorts of microscopic organisms and when a sample of sand is placed under the X-ray apparatus, a surprising abundance and variety of forms are revealed. Each individual may be analyzed under the microscope.

Besides these applications, micro-radiography lends itself to investigating the formation of bones of small vertebrates from their birth to the adult stage. Peculiarities of the skin and any anomalies of small, though not microscopically small, animals

can also be noted. The fleshy parts and even muscles become transparent, so as to come distinctly in the background, and the study of comparative anatomy is greatly facilitated.

Another of the recent interesting developments in X-ray photography allows one to obtain stereoscopic pictures in which all features displayed appear in the proper space relation,

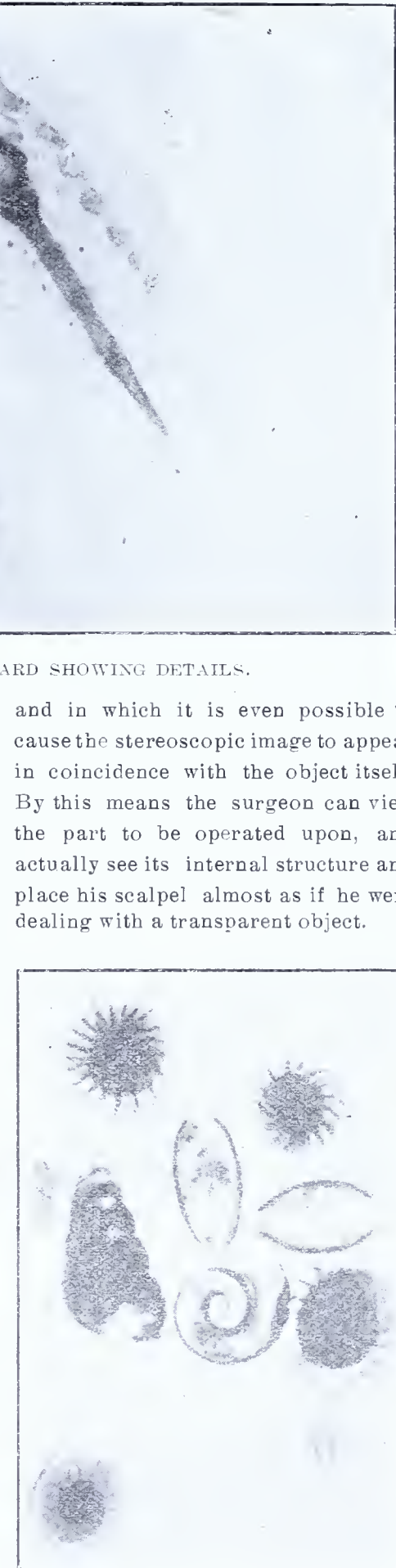


FIG. 2.—SEA SAND SHOWING FOSSIL REMAINS.

The apparatus also provides for the preparation of an ordinary photograph strictly coincident with the X-ray photograph, so that a permanent record can be obtained of the aspect of the object when viewed with the stereoscopic X-ray apparatus. The X-ray photograph is first prepared much in the usual manner, except that special care is taken to exactly locate the X-ray tube and the window in front of it in a definite position. The adjustment is obtained by means of two small apertures that transmit a narrow beam of X-ray on either side. This beam is allowed to



FIG. 3.—A LIZARD WHOSE BONES ARE OBSERVED.

fall on a phosphorescent screen. The tube is moved until the two spots of light adjust themselves coincident with certain marks on the screen. When this is done, one exposure is made and the tube is then moved through a distance corresponding to that between the pupils of the observer's eyes. A second exposure is then made under precisely similar conditions. The plates are developed and then placed in a viewing apparatus, and the part previously photographed is viewed.

Novel Instances of Electromagnetic Force.

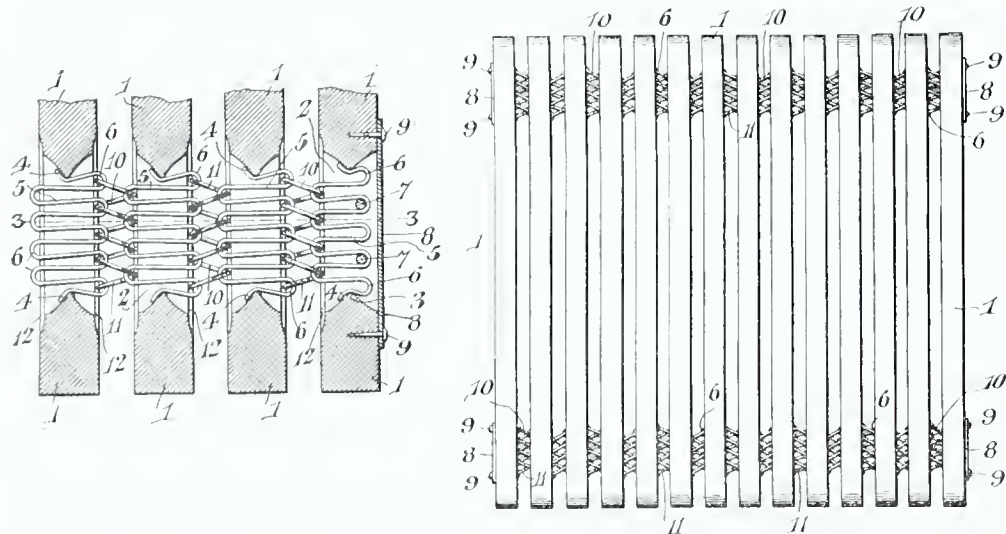
Something like the old fakir trick of India, which consists of throwing the end of a rope up into the air and then having a boy climb it, has been reproduced in this country. In this case, however, there is a more scientific basis for the trick than the optical illusion which is generally supposed to account for the feat in the land of mystery. The experiment was made in an electric crane factory. A chain was anchored in the ground, and the other end was provided with a ball of iron. A large magnet was swung into place a number of feet above, and its attraction was such that the ball rose into the air, dragging the chain to a taut, upright position. Such was the tension on the chain that a man had no difficulty in climbing to the ball at the top, and holding there without causing it to fall.

CLEVER NEW PATENTS.

FLEXIBLE MAT—AUTOMOBILE TIRE—WEDGE—BOX OR BAG GRAB.

Flexible Mat.

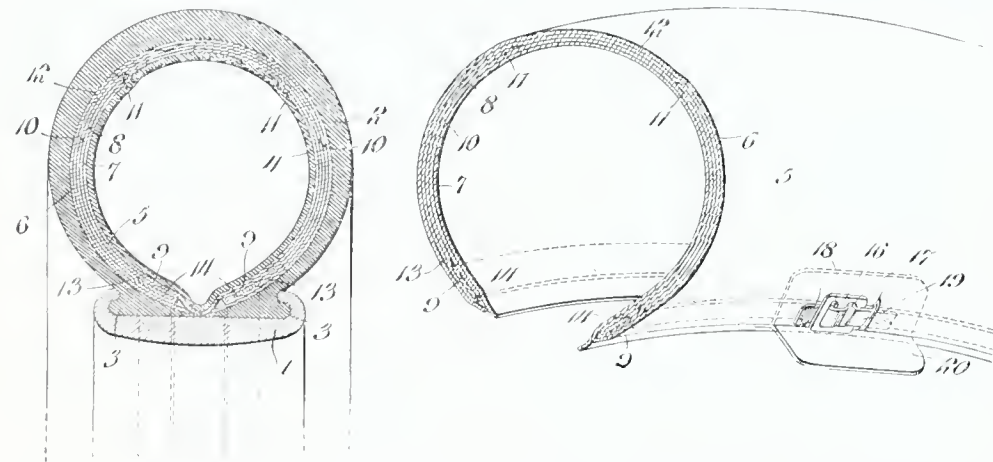
Something new and ingenious in the way of a flexible mat, made of slats and coiled springs so that it can be easily rolled up, but when desired lies flat and keeps its shape and affords a perfect tread surface, has been patented by Thomas C. McPherson, of Beaver Falls, Pa. (assignor to Keystone Wire Matting Co. of the same city). The slats have slots at their ends, as shown in the horizontal section of the figures. The projections 3 engage the ends 4 of resilient hinges which extend from one end of the slot to the other. When the hinge element is compressed and introduced into the slot the ends 4 engage the projections 3 at opposite sides, so that the hinge interlocks with the slats and is held in place until the slats are assembled. The hinge elements project



across and beyond the slats, forming eyes. They project from the inner sides of the end slats, the loops at the outer sides stopping short of the outer edges of the end slats and being secured thereto by pins 7. The end slats have metal face plates 8 covering the slots. The eyes of the loops are engaged by coiled springs 10 screwed into the same, and the end coils are closed by bending them inward into the plane of the end coils, forming terminal rings. When it is desired to remove a broken slat, the end coils are opened by pliers and the coiled springs unscrewed. The springs are seated in grooves 12 and these with the projecting eyes, hinge the slats together and form a flexible mat adapted to be rolled up for cleaning beneath the same or for compactly storing it.

Automobile Tire.

One of the drawbacks to motoring has been the liability to blow-outs in the tires. To strengthen them, linings or sub casings have been provided, but these as usually constructed have given little protection near the rim, and their utility has depended much on how well they were united to the outer tire. They have also been as a rule heavy and stiff at the tread, which prevents the tire bending, causing friction and generating heat at high speeds. A recent invention by Albert H. Fisher, of Lincoln, Neb. provides a lining whose meeting edges are practically together when installed, while endless bands, near to the meeting edges of the shoe, bear against the inner faces of the clencher beads of the tire, so that the strain is brought opposite those parts of the rim meant to withstand the strain, and the outer casing is protected from blow-outs

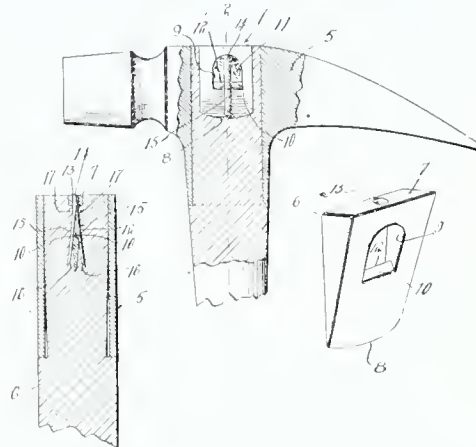


at the rim. As shown in the drawings, which give a radial section through a pneumatic tire with the lining applied, and a perspective of a section of the lining detached, this lining is made of a number of layers of canvas or rubber vulcanized together, one layer being formed at the margin into loops 9. In this case the size of the lining is five-ply and the tread portion is four-ply, since the return portions 10 of the layer 8 are not continued into the tread. This makes the tread portion more pliable than the sides, and reinforces the latter, where blow-outs are apt to occur. Each loop 9 incloses an endless band of metal 14, one edge being of less diameter than the other and the smaller one being directed toward the respective edge of the lining. The inner edges of the layer 7 extend closer together than the edges of layer 6, so as to contact with the rim 1 between the edges of the beads 3, and thus support the inner tube 4 and protect it against pinching between the beads 3. The bands 14 are placed opposite the beads 3 so that when there is pressure in the inner tube the expansion forces the bands against the beads and the latter against the rim, locking the lining in place and sustaining the inner tubes at all points,

at the same time protecting the outer casing against bursting strains. The steel bands are covered with cloth which is vulcanized to the fabric of the loops 9, thus holding the same together. The edges of the layer 7 are stiffened by the vulcanization, and thus come together and protect the inner tube. The layers may be coated with cement, so that when in place in a tire the lining becomes part of the same. With this reinforcement the tire is relieved from internal pressure so that it will wear much longer. As the bands 14 are lodged within the range of the rim, the internal pressure on the tire is relieved, and the lining is made resistant just where the tire is most liable to be weakened by wear.

Wedge.

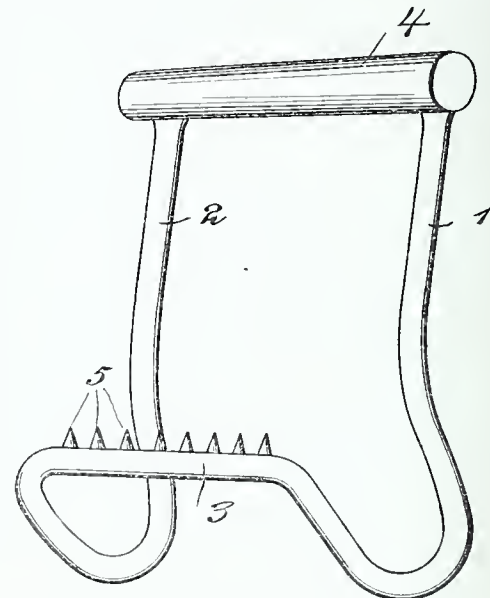
A device meant to be used with hammers and axes, which receives a lock and holds it against accidental movement, has been patented by Harry E. Frasher, of Denver, Colo. As seen in the cuts, the wedge is formed from a single metal casting, with a central opening and an arc-shaped entering edge. The wall of the opening next the entering edge is oppositely beveled to form a central edge 12. An opening 13 in the butt of the wedge is in alignment with the central edge. A lock is composed of spring arms 15, the inner faces of the lower ends being outwardly beveled. In applying it, the wedge is driven into the handle, and the lock 15 is projected into the opening 13. This is forced down by a hammer and the beveled ends 16 are caused to engage with the central edge 12. Further pressure forces the element into the handle so that the arms 15 spread and engage the handle, retaining the wedge



against movement. As the lock is so positioned, the opposed beveled edges of the wedge co-operate with the beveled edges 16-16 of the element to spread the arms. When the element is driven home the spring arms will bear frictionally against the walls of the opening 13 and lock the element against accidental movement. The wood of the handle will also partially enter the opening 9 of the wedge, thus further locking the latter.

Box or Bag Grab.

The ordinary bale hook has a tendency to tear the bag or injure the box which it handles. In hooks having a single prong, the shank has to be placed between the middle and ring fingers of the hand, which is inconvenient. The percentage of damage is so great that many articles are shipped



with the legend "Use no hooks." Ezra B. Rodman, of Jackson, Miss., has tried to obviate these drawbacks in a patent just issued. His device comprises separate shanks connected at their outer ends by a yoke bar and at their inner ends by a handle, the shanks being joined to the outer ends of the yoke bar and to the outer ends of the handle, as seen from the drawing. This permits the hand of the operator to engage the handle between the shanks without separating the fingers. Both shanks are formed on a curve, so as to offset the yoke bar, and this bar has a number of teeth, which are adapted to penetrate the bale or box, this penetration being limited by the yoke bar itself. These teeth may be integral, or screwed in so as to be removable. It will be seen that this device is convenient to handle, and that it will not mar the object handled.

PATENTS

Send Your Business Direct to Washington ∴ ∴
∴ ∴ Saves Time and Insures Better Service.

Trade Marks,
Copyrights
and
Designs.

My office is close to the U. S. Patent Office. Personal attention given—OVER THIRTY YEARS PRACTICE. Book "How to Obtain Patents," etc., sent free. Patents procured through E. G. Siggers receive special notice, without charge, in the—

INVENTIVE AGE

Illustrated Monthly—Twenty-sixth Year.
Terms, \$1.00 a Year.

E. G. SIGGERS, 918 F STREET, N. W.,
WASHINGTON, D. C.

LATEST COURT DECISIONS IN PATENT, COPYRIGHT AND TRADE-MARK CAUSES.

HOPEWELL v. LINSKOTT SUPPLY CO.
(District Court, D. Massachusetts,
June 2, 1913. 205 F. R. p. 757.)

1. PATENTS—VALIDITY AND INFRINGEMENT—TIRE CASES.

The Hopewell patent, No. 854,215, and the Kinder patent, No. 881,411, each for a tire case, for covering spare tires carried on automobiles, were not anticipated, and both disclose novelty and invention; also held infringed.

2. PATENTS—ANTICIPATION—EVIDENCE OF PRIOR USE BY ANOTHER.

Parol evidence to invalidate patents on the ground of prior public use by another considered, and held insufficient, unsupported by any authenticated exhibits of the alleged anticipating device.

SPECIALTY MACH. CO. v. ASHCROFT MFG. CO.

(District Court, S. D. New York. March 19, 1913. 205 F. R. p. 760.)

1. PATENTS—INVENTION—SUBSTITUTION OF EQUIVALENTS.

To substitute one kind of well-known gearing for another in a valve reseating tool would not involve invention, even though better results and more uniform grinding are obtained.

2. PATENTS—REISSUE—CLAIMS ABANDONED IN ORIGINAL PROCEEDINGS

The voluntary cancellation of a claim in the original application for a patent calling for positive driving means as an element of a combination is an abandonment of such element, and a claim for continuously acting positive means cannot be made the basis and principal feature of a reissue, nor can it be claimed that such feature was omitted from the original patent by inadvertence, accident, or mistake.

3. PATENTS—VALIDITY OF REISSUE—LACHES.

In the absence of special circumstances, a reissue should not be granted after a delay of nearly three years, and the rule should be strictly enforced, when, during the delay, other inventors have taken out new patents in the same art, which would infringe the reissue.

4. PATENTS—VALIDITY OF REISSUE—MACHINE FOR RESEATING VALVES.

The Hazeltine reissue patent, No. 13,421 (original No. 918,049), for a machine for reseating valves, is void because of the absence of statutory grounds for a reissue and also because of delay in applying therefor.

FRANK W. WHITCHER CO. v. SNEIERSON.

(District Court, D. Massachusetts. June 9, 1913. 205 F. R. p. 767.)

1. TRADE-MARKS AND TRADE-NAMES—UNFAIR COMPETITION—TRADE-MARKS IDENTIFIED WITH PATENTED ARTICLES—EXPIRATION OF PATENT.

Where during the entire life of a patent complainant, as the exclusive agent, sold the patented article under trade-marks of his own, the packages also bearing the patent mark, it must be presumed that the trade-marks became the identifying mark of the patented article, and on the expiration of the patent their use became free to other makers of such article.

2. TRADE-MARKS AND TRADE-NAMES—UNFAIR COMPETITION—IMITATION OF DRESS OF COMPETITOR.

The right of another maker to use such trade-marks, however, is not unrestricted, but subject to the condition that they clearly distinguish their goods from those of the original maker; and such a user, who, instead of doing so, deliberately imitates the packages and dress of the original maker's goods in the respects most likely to attract attention, is chargeable with unfair competition, which will be enjoined.

BYRD MFG. CO. et al. v. COLMAN et al.
(Circuit Court of Appeals, Fourth Circuit.
June 11, 1913. 205 F. R. p. 904.)

PATENTS—VALIDITY AND INFRINGEMENT—KNOTTING MACHINE.

The Colman patents, No. 672,636 and No. 755,110, for a knotting machine designed for tying knots in thread as it runs off the bobbin onto the spool in cotton mills, were not anticipated and disclose invention, the machine being of a primary character and great utility; also held infringed.

HALL MAMMOTH INCUBATOR CO. v. TEABOUT.

(District Court, N. D. New York. June 5, 1913. 205 F. R. p. 906.)

1. PATENTS—INFRINGEMENT—CONSTRUCTION OF CLAIMS.

Unless there are limitations written into the claims of a patent or imposed by the prior art or by the acceptance of a narrow claim in place of a broad one in the Patent Office, in order to secure the patent, the inventor is entitled to every form in which his invention may be copied and to a broad construction.

2. PATENTS—INFRINGEMENT—OMISSION OF ELEMENTS OF COMBINATION.

Joining two elements of a patented combination into one or dividing one into two, the one or the two, as the case may be, doing the same work as was done before in the same way, and no more, will not avoid infringement; but when the patentee writes into his claim a specific element, especially when there is a prior art, and gives to that element a specific or special function in the combination, one who leaves such element out, and does not substitute an equivalent, is not an infringer, although the result is the same, brought about by minor changes and suitable adaptation of the remaining elements.

3. PATENTS—INFRINGEMENT—NEW COMBINATION.

The fact that one by changing the location of one of the elements of the machine and claim of a patent and attaching it to another of the elements of the machine and claim without changing the form and function of the element to which it is attached, except to make it perform a double office or function, may and does leave out one of the elements of the patent as claimed, and still obtain the same result, does not make him an infringer, even though in all other respects his machine is a Chinese copy of the one described and claimed in the patent, but his change produces a new combination.

4. PATENTS—INFRINGEMENT—COMBINATION.

Where a patentee has especially claimed all the elements of a combination, he thereby asserts their materiality, and cannot be heard to deny it.

5. PATENTS—INFRINGEMENT—INCUBATOR.

The Hall patent, No. 692,277, for an incubator, as limited by the prior art and the specific language of the claim, held not infringed.

SLIP SCARP CO. v. BLANCHARD & PRICE.

(District Court, S. D. New York. May 10, 1913. 205 F. R. p. 921.)

PATENTS—VALIDITY AND INFRINGEMENT—NECKTIE.

The Keys patent, No. 923,534, for an improvement in neckwear, claims 2 and 3, held void for lack of invention, and claim 7 as broader than warranted by the specification. Claim 1, for a necktie having a portion of the inner side of the neckband cut away and a strip of antifriction fabric substituted therefor, to prevent it from being torn by the rear collar button, was not anticipated and discloses invention; also held valid, as against the claim of prior use, and infringed.

CROMPTON & KNOWLES LOOM WORKS v. STAFFORD CO.

(District Court, D. Massachusetts. June 25, 1913. 205 F. R. p. 925.)

1. PATENTS—NOVELTY—WEFT REPLENISHING MECHANISM FOR LOOMS.

The Smith patent, No. 692,935, for weft replenishing mechanism for looms, claims 13 and 14 held void for lack of patentable novelty in view of the prior Northrop patent, No. 600,016.

2. PATENTS—LIMITATION—OATH TO APPLICATION.

On a fair construction, the language of the oath required of an inventor to his appli-

cation applies to what is described as his invention, and also to what is claimed, and is not limited merely to what is both described and claimed.

YALE & TOWNE MFG. CO. v. WORCESTER MFG. CO.

(District Court, D. Massachusetts. June 23, 1913. 205 F. R. p. 954.)

1. TRADE-MARKS AND TRADE-NAMES—NAMES APPLIED TO PATENTED ARTICLES—RIGHTS AFTER EXPIRATION OF PATENT.

While the name of a patentee used as a mark or advertising to designate the patented article cannot be monopolized as a trade-mark after the expiration of the patent, it may also have become in some degree significant of origin with the public, and in such case its subsequent use by a competitor must be in such manner or in connection with such notice that purchasers will not be deceived as to the manufacturer.

2. TRADE-MARKS AND TRADE-NAMES—NAMES APPLIED TO PATENTED ARTICLES—RIGHTS AFTER EXPIRATION OF PATENT.

For 12 years before the expiration of a patent for a door check, complainant made and sold such checks under a contract with the owner of the patent, and had marked the same with the name "Blount," who was the patentee, and its own name. During the same time others had made under the patent, but none had marked them with such name. Two years after the expiration of the patent, defendant commenced the manufacture of a door check very similar in appearance to those of complainant, and placed on the plates attached thereto the name "Blount" in conspicuous letters, followed by its own name in much smaller letters. It also advertised them in the same manner. Held, under the evidence, that during the preceding 14 years the name had come to indicate in part the door checks made by complainant, and that its use by defendant was a violation of complainant's rights; that it was entitled to have defendant make the name less, and its own name more, conspicuous, and otherwise indicate clearly that its door checks were not those of complainant.

3. TRADE-MARKS AND TRADE-NAMES—UNFAIR COMPETITION—PROOF OF DECEPTION.

In a suit for unfair competition, proof of actual deception is not necessary, but the court may determine without it from the exhibits themselves whether deception will be the natural and probable result of their use.

LUDWIGS v. PAYSON MFG. CO. PAYSON MFG. CO. v. LUDWIGS.

(Circuit Court of Appeals, Seventh Circuit.
April 15, 1913. 206 F. R. p. 60.)

1. PATENTS—VALIDITY AND INFRINGEMENT—SASH-LOCK.

The Payson patent, No. 623,620, for a sash-lock, was not anticipated and discloses invention; also held infringed.

2. COURTS—JURISDICTION—INFRINGEMENT OF PATENT—INCIDENTAL UNFAIR COMPETITION.

Where, in a suit in equity for infringement, the evidence which proves infringement also establishes that defendant made the infringing article in imitation of the patented device in form and appearance, such imitation, while constituting unfair competition, is in a fairer aspect an aggravation of the infringement, and damages therefor are recoverable in the same suit, regardless of the citizenship of the parties.

HOLMES et al. v. BURNETT.

(District Court, N. D. Illinois, E. D. July 16, 1913. 206 F. R. p. 66.)

1. PATENTS—SUIT FOR INFRINGEMENT—EQUITY JURISDICTION

That a patentee has assigned an interest in his patent, including the right of recovery for past infringements, to his co-complainants, since the acts of infringement charged in the bill, does not deprive a court of equity of jurisdiction, where the alleged infringing

article was made by defendant under a patent to himself, and he claims the right to make, use and sell it.

2. PATENTS—VALIDITY AND INFRINGEMENT—DENTAL APPLIANCE.

The Holmes patent, No. 900,541, for a dental appliance for taking wax impressions, is valid, of a primary character, and is entitled to a reasonably broad construction; also held infringed by the device of the Burnett patent, No. 984,796.

BUZBY v. KEYSTONE OIL & MFG. CO.

(District Court, N. D. Illinois, E. D. July 14, 1913. 206 F. R. p. 136.)

TRADE-MARKS AND TRADE-NAMES—INFRINGEMENT—INJUNCTION.

Complainant engaged in manufacturing lubricating grease, adopted the trade-name "Keystone Lubricating Company," and as a trade mark the symbol of the keystone of an arch, to be used in marking its packages, the word "Keystone" being used in connection, and its grease became known as "Keystone grease." Held that, confusion resulting, and the public being misled to buy defendant's lubricating grease, from its using the word "Keystone" in its corporate name, "Keystone Oil & Manufacturing Company," and to indicate its product, it should be enjoined from using that word in that part of its business.

CROWE v. OSCAR BARNETT FOUNDRY CO.

(District Court, D. New Jersey. May 23, 1913. 206 F. R. p. 166.)

1. PATENTS—VALIDITY AND INFRINGEMENT—GRATE BAR.

The Crowe patent, No. 668,495, claims 1 and 2, for a grate-bar for use in furnaces, must be narrowly construed in view of the prior art and the proceedings in the Patent Office and limited to the specific form of hooks shown and described for attaching the chain of a traveling grate. As so construed, held not infringed by the grate-bar of the Clark patent, No. 972,751.

2. PATENTS—INFRINGEMENT—EVIDENCE.

The granting of a patent for a device similar to one covered by a prior patent is prima facie evidence that there is a substantial difference between the two and that the device of the later patent does not infringe the earlier.

C. A. DUNHAM CO. v. WARREN WEBSTER & CO.

(District Court, D. New Jersey. June 9, 1913. 206 F. R. p. 168.)

PATENTS—INFRINGEMENT—THERMOSTATIC CONTROLLER.

The Dunham patent, No. 865,171, for a thermostatic controller, construed in the light of the prior art and of the specification, which states that it is for an improvement on the devices of prior patents to the patentee, must be limited to the specific construction shown and described. Claim 3, as so limited, contains nothing disclosing invention aside from a plate in the expansion disk to act as a brace and prevent the collapse of the walls of the disk. As so construed, the claim held not infringed.

LUTEN v. MacAFEE et al.

(District Court, M. D. Pennsylvania. June 8, 1913. 206 F. R. p. 175.)

PATENTS—INFRINGEMENT—LICENSE.

A defendant cannot be charged with infringement of a patent, when the patented article was sold him by the patentee with license to use the same, even though the consideration agreed upon has not been paid.

BRITISH-AMERICAN TOBACCO CO., Limited, v. BRITISH-AMERICAN CIGAR STORES CO.

(District Court, S. D. New York. June 6, 1913. 206 F. R. p. 189.)

TRADE-MARKS AND TRADE-NAMES—UNFAIR COMPETITION—RIGHT TO USE OF CORPORATE NAME.

A bill by the British-American Tobacco Company, Limited, a British corporation manufacturing tobacco products, which it sells to jobbers and retailers only, held not to state a cause of action for an injunction against the British-American Cigar Stores Company, an American corporation selling tobacco products at retail only, to restrain it from using the words "British-American" in its corporate title, where it was not alleged that the words had acquired a secondary signification in connection with complainant's products, and the bill showed that the parties were not in competition with each other.

MECHANICAL INVENTIONS

Patents for which have been procured through the Patent Soliciting Office of E. G. Siggers, Patent Lawyer, Washington, D. C.

Frederick L. Weeman, Portland, Maine. Oil Burner.—The object of the invention is to provide a simple form of oil burner which will effect complete vaporization and combustion of the oil without soot and with the production of an intense heat. The invention comprises a casting designed to be placed in the fire box of a stove, and, if desired, it may replace the grate. Carried by this casting are burner heads fed by piping through which the oil flows to the burner heads, and during which flow the oil may be pre-heated, while the air supply may be regulated by the usual draft appliances with which stoves are customarily provided. The invention also includes a lighting device, which may form a practically permanent part of the structure without interference with the burner heads, and yet may readily be moved into operative relation to the burner heads. The invention is peculiarly well adapted for the work intended to be performed.

William B. Homer, Springfield, S. D. Two patents.—The invention of the first patent relates to a sliding gate, more especially the means for operating the same, and it has for its object to provide a gate equipped with operating mechanism adapted to be readily operated at either side, and capable of adjustment to secure the desired leverage for an easy operation of the gate. The invention comprises a supporting frame having a horizontal track, a gate slidably suspended from the track and movable along the same, an actuating wheel mounted in the frame and provided with an eccentrically-arranged weight secured to the wheel at the periphery thereof, and having a curved outer face merging into the periphery of the wheel and increasing the length or extent of the same, a flexible connection secured to the weight at the center thereof and encircling the wheel and extending therefrom in opposite directions and connected to the gate at the ends thereof, a bail straddling the said wheel and eccentrically pivoted to the same, operating levers located at opposite sides of the gate, and frictional connections extending from the operating levers and connected with the bail and adapted to lift the same for rotating the actuating wheel.

The second patent covers a draft equalizer designed for use on agricultural and other machines, and capable of equalizing the draft between a single draft animal at one side of a plow or tongue, and a plurality of draft animals at the opposite side thereof without producing side draft in the equalizers. The draft equalizer comprises a support including a draft beam or pole, and a relatively fixed transverse bar extending from opposite sides of the same, a transverse equalizing lever pivoted intermediate of its ends at a point in rear of the bar and extending from opposite sides of the draft beam or pole, an inwardly extending transverse lever pivoted at its outer end to one end of the transverse bar, an outwardly extending transverse lever pivoted at its inner end to the other end of the transverse bar, whiffletrees connected to the free end of the transverse levers, and links for connecting the latter with the equalizing lever.

John F. Hunter, Rifle, Colorado, inventor; Richard O. Hutchings and Wm. Wormbrodt, assignees, same place. Stirrup Leather Fastener.—It is the aim of the present invention to provide a buckle designed to obviate the trouble and inconvenience of lacing stirrup straps, and yet provide an adjustable connection for the same, enabling a stirrup to be easily and quickly lengthened or shortened. The fastener comprises side bars, end bars connecting the terminals of the side bars and fitting against the inside strap, a central cross bar connecting the side bars and fitting against the outside strap, approximately hook-shaped studs carried by both the end bars and extending outwardly and being of a length to pass through both of the overlapped straps and engaging the outer face of the outer strap, and studs projecting inwardly from the central cross bar and extending through both of the stirrup straps.

Edward G. Kothe, Parkersburg, Iowa. Pipe.—This invention has for its object to provide means for rendering the bottom of the bowl of a pipe readily accessible for the purpose of cleaning the same to eliminate the disagreeable odors and secretions common to the ordinary tobacco pipe. The invention comprises a pipe having an opening through the bottom of the bowl substantially of the area of the smoke passage, and provided at the exterior of the bowl with a flat inclined face surrounding the bottom opening, and a laterally movable substantially flat closure plate adapted to be swung away from the opening and into the plane of the lower face of the stem to serve as a support for the pipe with the bowl in an upright position, and with the bottom opening elevated above the surface upon which the pipe is placed, to permit a draft through the bowl to support combustion of the tobacco, said plate having a projection struck inwardly from the center of the plate to engage in the said opening to hold the plate against lateral movement.

Ferdinand H. Lange, Jr., Wilkes Barre, Pa. Door Hanger.—The object of this invention is to provide a hanger designed for use on various kinds of sliding doors, such as house doors, car doors, barn doors and the like, and adapted to adjustably suspend a sliding door from a track, and equipped with means for adjustably supporting the track at an intermediate point to maintain the track in a horizontal position. The invention consists of a horizontal track, end supports, means for suspending the sliding doors from the track, a central supporting member arranged beneath the track and receiving the same, a bolt piercing the track and supporting member and having a lower depending threaded portion, a nut consisting of a sleeve arranged on the threaded portion of the bolt, and a tubular buffer of elastic material encasing the nut and forming a stop for the sliding doors.

Jacob Mussell, Caldwell, Idaho. Four patents.—The first patent relates more particularly to means for elevating water, but is useful for other purposes, the principal object being to provide an effective elevator, adapted to be readily installed and equipped with buckets which will expeditiously fill and empty themselves. The elevator comprises an endless chain, elongated narrow buckets mounted thereon, each bucket having a contracted mouth and an opening at the bottom, a flexible valve disk located

in each bucket and movable to a position across said opening, a screw eye having a head disposed outside the bucket and a shank extending through the opening in the bottom and secured to the valve disk, and headed fastening devices passing through the links and through openings in the end walls of the buckets and permitting relative movement of the links and the buckets.

It is the aim of the invention of the second patent to improve the conveyer mechanism of the first patent, and to provide conveyer mechanism adapted to be applied either to a relatively wide bucket at the ends thereof, or to the center of a relatively narrow bucket, and including a bucket supporting link capable of materially reducing the number of sprocket teeth of the cooperating sprocket wheel. The invention comprises a chain having a link composed of rigid continuous side bars, front and rear offset webs connecting the side bars at points between the ends thereof and fitting against and rigidly secured to the bucket, and front and rear integral connecting end bars, the front end bar being provided with a hook and spaced from the web to provide a tooth-receiving opening of sufficient size to position the sprocket tooth beyond the bucket and prevent the said tooth from contacting with the fastening means for securing the link to the bucket.

The object of the invention of the third patent is to increase the strength of the hooks and chains used in the conveyer mechanism of the previous patent, enabling the buckets to be fastened to the links more rigidly than heretofore. The invention comprises a chain having a bucket-carrying link provided at one end with a hook, and having at a point intermediate its ends fastening means for securing it to the bucket, and a support receiving and secured to the bucket and formed integral with and strengthening the hook.

The fourth patent covers an efficient and practical valve designed for use on conveyer mechanism of the previous patents, said valve being adapted to enable a bucket to fill readily with water, and capable of effectually preventing the water from leaking while the bucket is being conveyed upwardly. The valve comprises a spider consisting of a plate, and substantially L shaped guiding arms extending from the periphery of the plate approximately at right angles thereto and forming inwardly projecting terminal lugs, a rubber disk having a recess in its underside to receive the plate of the spider, and a bolt piercing the plate and the disk and provided on the underside of the plate with a nut, and having a head at its upper end seated in the rubber disk.

Charles J. Turner, Monticello, Iowa. Wire Stretcher.—The object of the present invention is to provide a wire stretcher adapted to be easily handled and capable of being quickly set up for use to operate on woven wire, barbed or smooth fence wire. A further object of the invention is to enable the wire stretcher to be placed against a fence post and operated without an additional anchoring post, and to provide means for readily connecting the wire stretcher with the wire to be stretched by the use of clamps and by means of a relatively small amount of wire. The wire stretcher comprises a frame having upper and lower arms arranged to fit against the fence post and provided with openings, a vertical shaft journaled in the arms and having means for the attachment of fence wires, upper and lower ratchet wheels fixed to the shaft and operating in the openings of the arms, pawls or dogs mounted in the openings of the frame and engaging the ratchet wheels, and means located at opposite sides of the frame for securing the same to a fence post.

John Reel, Weir, Miss., inventor; J. S. Powell, Stewart, Miss., assignee. Nut Lock.—It is the aim of the present invention to provide a device designed for use on the bolts of rail joints, bridge-work and other parts subject to vibration, and adapted to be readily applied to the same without necessitating any alteration in the construction of the bolts or nuts, and capable of preventing a nut from unscrewing. The nut lock comprises a base plate provided with a bolt opening and having upper and lower enlargements, the upper enlargement being provided with a recess, a locking plate having a polygonal nut receiving opening, and provided at its inner face with a flange arranged to enter the said recess, said base plate being provided with a horizontal bore cutting the recess to form a groove in one of the walls thereof, and the said flange being provided in its corresponding face with a horizontal groove, which cooperates with the groove of the recess to form an interior bore, and the said base plate and flange being also provided with registering vertical openings forming a passage extending downwardly from the upper edge of the base plate to the interior bore, the horizontal bore and the vertical passage permitting a locking pin to be arranged in either a vertical or horizontal position, and the vertical passage also constituting an oil cup to permit lubricant to be applied to the bore when a horizontal locking pin is used.

Stanley G. Stevens, Jr., and William P. Herron, Farmersville, Texas. Knee Pad for Cotton Pickers, etc.—The invention has for its object to provide a knee pad adapted to shield the knees of a cotton picker or other person and protect the clothing from wear, equipped with a pneumatic cushion adapted to present a soft cool surface to the knees, and enabling a person to walk on his knees without injuring them, thereby avoiding stooping, and affording maximum ease and comfort in picking cotton and other work requiring a person to kneel. The knee pad includes a blank of heavy flexible material folded longitudinally and transversely to form front and side walls, and provided at opposite sides of the front portion with slits extending inwardly from the side edges of the blank, and providing upper flaps and lower attaching strips located at the juncture of the front portion and the bottom and extending longitudinally of the side walls, approximately U shaped metallic pieces extending across the bottom of the pad and up the side walls to prevent the same from bending outwardly, a flexible casing arranged within the body and having a central depression, and a tubular pneumatic cushion located within the flexible casing and extending around the central depressed portion of the same.

John Sunkler, Salinas, California. Adjustable Stand for Barrels.—The object of the invention is to provide a stand for barrels, cans and like containers, which stand is furnished with means for readily tilting the same and automatically locking it in its adjusted position. The invention comprises a stand made up of a pair of standards spaced apart, a rectangular receptacle, trunnions carried by the receptacle and pivoted in the standards, the end of one of said trunnions being extended beyond the outer face of the standard in which it is pivoted, a resilient handle rigidly secured to the projecting end of said trunnion, a curved rack secured to the side of said standard adjacent the handle, and a lug carried by the handle and extending inwardly to bear against said rack to place said resilient handle under tension, whereby when the handle is moved to adjust the position of the receptacle, the same will be held firmly in its adjusted position.

NEW PATENTS FOR SALE.

Advertisements inserted in this column for 10 cents a line (about 7 words) each insertion. Every new subscriber sending \$1.00 to THE INVENTIVE AGE will be entitled to the AGE one year and to five lines three times FREE. Additional lines or insertions at regular rates.

FOR SALE—I offer state right on mineral fertilizer patent granted by United States January 15, 1913. For further information address, Prof. E. C. Lindemann, Boulder, Colo. ap

FOR SALE—Patent No. 1,077,054, patented Aug. 26, 1913. The Hursh Folding Basket. Can be used for all purposes. Will sell outright. Terms reasonable. Address, Albert S. Hursh, Milton, Pa. ap

FOR SALE cash or royalty—Patent No. 1,076,345. Tire shoe for rubber tires of automobiles, etc. This shoe will prevent rubber tires being punctured and to keep them from wearing out. Address, A. S. Bullock, Aitkin, Minn. ap

FOR SALE Patents—or part interest in locks for public buildings. The only both ways operated single or double door locks on the market, catches either way, or makes push doors. Address, A. M. Hoes, Grand Island, Nebraska. ap

FOR SALE—Keep the nuts on your wagon. I have lock nut Patent No. 1,073,009, Sept. 9, 1913, which will do the business and do it right. Will sell outright or on royalty. It will pay you to investigate. Write Ralph Wolf, Box No. 16, Franktown, Colorado. ap

FOR SALE or on royalty—Adjustable razor hoe. Lies flat, and cuts front and back under vines, trees, fences. Shaves grass and weeds. Costs 25 cents. Sells for a dollar. Every yard owner wants one. Address, Wards Coast Lands, Weimar, Texas. ap

FOR SALE—Patent No. 1,072,654. Photographic film drying rack. Holds any size film. Saves considerable time and trouble in handling film negatives. Will consider any reasonable or even unreasonably small cash offer as I am not in position to promote or manufacture. D. J. Rorabeck, Ryegate, Montana. ap

FOR SALE—Patent issued Jan. 1914. Combination Salt and Pepper Shaker. Has merit. Will meet requirements, and will be a ready seller. Just the thing for mail order business. The man with brains and energy can make a fortune. Will sell outright or on royalty. Address, Hiram D. Kirkley, Paragould, Ark. ap

FOR SALE—I have patent pending, Serial No. 787,960, on an automatic lock for the inside of double doors, such as cupboards and the like, in the place of a hook. In opening the first door, the second door is unlocked, and closing the first door the second door is locked automatically. Simple and cheap to manufacture. Write for particulars, Frank E. Davis, R. F. D. No. 2, Payette, Idaho. mar

FOR SALE—The only meritorious railroad rail joint coupling and support ever patented. Worth millions. Will sell cheap. Address, Charles C. Acker, Winnsboro, Tex. mar

FOR SALE—Patent No. 1,064,939, dated June 17, 1913. Adjustable stand for barrels and cans. All offers considered. Address, John Sunkler, Salinas, California. mar

FOR SALE—U. S. patent issued July 8, 1913. A twister shovel plow with narrow land bar, integrally formed. Would make a royalty deal or have them manufactured. A copy of patent and model to one interested. Address, W. T. Simmons, Langley, Ark. mar

FOR SALE—Patent No. 1,073,065, issued Sept. 9, 1913. The Altman fence gap fastener. A clamp to replace gates and bars in wire fences and to make gaps in wire fences quickly and at a small cost. Can be used on any kind of wire fence. Will sell cheap for cash. Write for particulars to George M. Altman, R. F. D. No. 66, Parkers Landing, Pa. mar

FOR SALE—U. S. Patent No. 1,078,475, and Canadian Patent No. 152,467. A vertical oil burner for cook stoves. Will sell outright or state rights. For particulars write, Frederick L. Weeman, 89 1-2 Portland St., Portland, Maine.

FOR SALE—Patent No. 1,065,990. Agricultural machine. Combines in one implement a fertilizer distributor and seed planter. Address, R. L. Walker, Care of Mrs. J. J. Sligh, Tampa, Florida. feb

FOR SALE—Patent No. 1,043,687. A small crutch to be applied to any make of artificial limb. Is worn under the clothing and gives relief to wearer. Address, William A. Gilbert, 619 W. 127th St., New York City. feb

FOR SALE—Patent No. 1,030,028, dated June 28, 1912. Spark Arrester. Particularly designed for locomotive smoke stacks. Will prevent sparks and cinders from being ejected therefrom. Simple to build and cheap to manufacture. Address, Stampahar & Rom, P. O. Box 584, Red Lodge, Mont. feb

FOR SALE cash or royalty—U. S. Patent No. 1,070,414. Track adjusting device, and new improvements. Great labor saver in pulling ties and posts, lining tracks, etc. Address, John Contos, Box 114, Grand Island, Nebr. feb

FOR SALE—U. S. Patent No. 1,062,107, issued May 20, 1913. Wire spoon holder to prevent spoon slipping into kettle. Cheap to manufacture. All offers considered. Royalty proposition preferred. Address, S. E. Lyon, 1122 Ogden Ave., Menominee, Michigan. feb

FOR SALE—Patent No. 996,622. Gearless mowing machine. Cutter bar is operated by a cam motion. Will sell for \$2,000. Address, John Paul DeRose, Pease, Minn. feb

FOR SALE—Patent No. 1,042,075, dated Oct. 22, 1912. Upright folding bed, with different new improvements. Please send proposition to Henriette Brandt, New Brighton, N. Y. feb

FOR SALE—Patent No. 1,036,408, patented Aug. 20, 1912. Automatic feeder for steam boilers. Will sell at very reasonable price. Address, John Alfredson, Box 210, Hibbing, Minn.

FOR SALE—A money maker for an investor. The Cory rail clip to prevent railroad rails from spreading. Is a gold mine for a monied man. Address, Henry T. Cory, Dexter, New York. feb

FOR SALE outright—U. S. Patent No. 1,055,842, dated March 11, 1913. Magazine tobacco pipe. Best device ever invented for smokers. Cheap to manufacture. Will sell for reasonable price. Address, William W. Warden, Jr., Eads, Colorado. feb

FOR SALE—U. S. Patent No. 1,023,494, dated April 16, 1912. Current motor to produce power and light. Can be placed on any stream without damming or blocking same. Address, D. Bartoszwicz, Box 312, St. Joseph, Mich. feb

FOR SALE outright or on royalty—Patent No. 1,042,603. Removable buggy seat designed for carrying a third person. Something new and of merit. I have no means. If interested, address Mary Rockwell, Frankfort, Kansas. feb

FOR SALE—U. S. Patent No. 1,067,778, dated July 15, 1913. The Beaver snow plow. For railroad and street cars. Will sell outright. Terms reasonable. Address, John D. Beaver, St. John, Kansas. feb

FOR SALE—Cash. Patent No. 1,049,242, issued December 31, 1912. Combined mop holder and wringer. The mop will perform any one of the three different operations at will and without any adjustment whatever, either as a mop, mop wringer, or scrubber. Walls and ceilings may be cleaned. Simply remove the scrubber. The mop has been thoroughly tested for seven months and has been enthusiastically received by every woman who has tried one. All offers considered. Address, J. W. Krueger, Litchfield, Minnesota. feb

FOR SALE—Patent No. 1,022,626, dated April 9, 1912. Self-detaching holdback for all single horse vehicles. Works automatically and obviates the wrapping of shafts. When the traces are detached the draft animal is free to move forward from the vehicle. Will sell the patent at a reasonable price, as I am in the lumber business and have as much as I can attend to. For full particulars address, W. A. Hagerman, 897 Queens Ave. London, Ont. feb

BUSINESS OPPORTUNITIES.

Let us give you prices on manufacturing your patents. Prices reasonable, well equipped. Patents bought and sold. S. D. Cruise & Co., Louisville, Ky. mar

CHAS. F. LAGANKE

MANUFACTURER OF
HIGH GRADE SPECIALTIES
MODELS AND EXPERIMENTAL WORK,
SPECIAL TOOLS.

Card Building, 118 St. Clair Ave. N. E.,
Correspondence Solicited. CLEVELAND, O.

Electrical Review and Western Electrician

Published weekly from the center of the industry, this publication is in the best possible geographical position to gather and present the most important and interesting news of the entire electrical industry.

SUBSCRIPTION PRICE

U. S. \$3.00 per year. Canada \$4.00 per year. Foreign Countries \$6.00 per year. Sample Copy Free

It is seen and read by practically every buyer of electrical material in this country and abroad. Advertising rates on application.

ELECTRICAL REVIEW PUBLISHING CO., 507 Marquette Bldg., CHICAGO.

A NEW BOOK FOR INVENTORS

Patents and How to Make Money out of Them,

By W. B. HUTCHINSON.

This is the only book published, giving a detailed and full account, from the author's actual experience, of just what steps are necessary from the time the invention is conceived, to the time it is sold, with a clear and concise resume of the law and practice, legally and commercially, of trade-marks and copyrights. It also tells accurately How and What to invent. How to sell Inventions, Place them on the Market, Interest Capital in them, and to successfully Promote a Stock Company. It also contains an index of forms worth double the price of the book to any one interested.

ELEGANTLY CLOTH BOUND.

GOLD STAMPED. \$1.00 Postpaid.

Sent with one subscription to AGE for \$1.50

Or will sell separately.

Address—The Inventive Age Pub. Co.,

918 F St., N. W. WASHINGTON, D. C.

HALF-TONES ZINC ETCHINGS
DESIGNS

LANMAN

ENGRAVING

COMPANY

PROCESS ENGRAVERS, ILLUSTRATORS, DESIGNERS.
TRADE-MARK DRAWINGS
EXECUTED.

"Quality and Speed"

POST BUILDING

Fourteenth St., and Pennsylvania Ave. N. W.

Phone, Main 673

MODERN ELECTRICS & MECHANICS.

"The Magazine That is Different."

Every man interested in patents and inventions should take at least one non-technical magazine and keep up-to-date on the new wonders and advances in electricity and mechanics.

Modern Electrics & Mechanics illustrates and describes these subjects in a style that you will easily understand and enjoy. It contains from 128 to 160 pages monthly and is full of instructive and valuable articles on how to make things at home and answers your questions free. Regular departments on "With the Inventor" and "Advice on Patents." Fifteen cents per copy on news stands, \$1.50 per year by subscription.

To acquaint new readers with this distinctive magazine we will send a three months' trial subscription for 25 cents, stamps or coin. Can you think of a better investment for a quarter? Better send to-day.

MODERN ELECTRICS & MECHANICS 292 FULTON ST., NEW YORK.

ATTENTION INVENTORS!

LISTS OF MANUFACTURERS FURNISHED.

We have increased our facilities for furnishing lists of manufacturers, and now cover every line of industry. The names are obtained from well known directories.

Our charge for each list is one dollar.

In ordering, please state specifically the class of manufacturers desired.

Address: INVENTIVE AGE Pub. Co., Dept. M. 918 F. St., Washington, D. C.

Every subscriber when sending \$1.00 is entitled to a free advertisement, not exceeding five lines, of any patent in which he may be interested. The ad. will be inserted three times.

THE INVENTIVE AGE PUBLISHING CO., Washington, D. C.

I herewith enclose \$1.00 for one year's subscription to

"THE INVENTIVE AGE."

I also enclose ad. for insertion in the (Patents for Sale*) (Want*) column of your paper.

NAME.....

P. O.

STATE.....

*Please indicate in which column you want the ad. inserted.

N. B.—Remit in the way most convenient.

The Inventive Age

Established 1889.

Published monthly by

THE INVENTIVE AGE PUBLISHING CO.,

National Union Building, 918 F Street, N. W.,

WASHINGTON, D. C.

THE INVENTIVE AGE is sent, postage prepaid, to any address in the United States, Canada, Mexico, Hawaii, and Porto Rico, for ONE DOLLAR a year; to any other country, postage prepaid, ONE DOLLAR AND TWENTY-FIVE CENTS.

Correspondence with inventors, mechanics, patentees, and manufacturers, is invited. The columns of this journal are open for the discussion of such subjects as are of general interest to its readers.

Technical matter is particularly desired. We want practical information from practical men.

THE INVENTIVE AGE is independent.

Special facilities for furnishing cuts of any patented device together with descriptive article. Business specials 10 cents a line each insertion: 7 words to the line. No advertisement less than 25 cents.

Address all communications to

THE INVENTIVE AGE PUBLISHING COMPANY,

WASHINGTON, D. C.

Entered at the Post-office as 2nd class matter.

WASHINGTON, D. C., FEBRUARY, 1914.

BRIGHT PROSPECT FOR NEW PATENT OFFICE BUILDING.

The movement for the erection of a new structure for the Patent Office has received fresh impetus from recent action by Congressmen. Representative Thomson, of Illinois, has introduced a bill providing a proper home for the Patent Office forces and the housing of patent records and models, and he will in a few days confer with Chairman Clark of the public buildings and grounds committee of the House, in an effort to have the bill reported.

The measure seeks to enlarge the powers of the commission created by the latest public buildings bill, especially to report on plans for a new Patent Office. That commission is composed of the Secretary of the Interior, the Commissioner of Patents and the Supervising Architect of the Treasury.

It has met once, but owing to the fact that no money was appropriated for the commission, nothing has been done. The public buildings bill "authorized" the expenditure of \$5,000, but the term is generally a misleading one. After money has been authorized it must be appropriated definitely in the sundry civil appropriation bill, and that has not yet been done. Government officials who are face to face with a most serious problem in connection with the old and inefficient Patent Office building are endeavoring to have this sum included in the coming appropriations.

Representative Thomson has had his attention called to the pressing need for a new Patent Office, by patent attorneys from his district. His bill calls for "a fireproof building for the use and accommodation of the Patent Office of the United States and for such other purposes as Congress may hereafter direct." It also includes a "hall of inventions." Mr. Thomson suggests that the proper site would be op-

posite the Congressional Library to the north, on the squares bounded by East Capitol street, B street northeast and 1st and 2nd streets northeast. The bill proposes to grant to the commission already appointed the power to acquire this site.

It is to be hoped that the present Congress—which has already made a record for the passage of important measures—will speed action on this bill. A new building for the Patent Office is of pressing necessity. Safer, more adequate housing is needed for the examiners and their assistants. When the present Patent Office building was erected, the government was examining only from 5,000 to 6,000 applications per annum and issuing from 4,000 to 5,000 patents, but was even then piling up a surplus to the extent of from \$20,000, to \$30,000. Since that time the business of the Office has grown until the last annual report of the Commissioner shows that more than 70,000 applications for patents were filed in 1912 and more than 37,000 patents issued. This is supplemented by nearly 6,000 trade-marks and prints for which the certificates of registration have been issued. With this increased business, all conducted under the same roof and within the same walls, the Patent Office made a profit of over \$95,000 during the year 1912, bringing the grand total of surplus earned since 1837 up to \$7,160,017.95.

It will thus be seen that Congress is merely asked to turn back to the Patent Office in the shape of a new building and equipment only five-sevenths of the money actually earned and returned to the United States Treasury.

There is no question whatever in the mind of any one who has ever had any occasion to visit Washington and go into the Patent Office, that the accommodations now set aside for the Patent Office are absolutely inadequate and that they interfere seriously with the proper conduct of the business and with the issuance of patents to inventors.

The fact that the basement and even corridors have to be utilized in the conduct of the business militates directly against the results attained. When one realizes that the business of the Office has grown tenfold and the space available for increased use has been only by the utilization of basements and corridors, it must be apparent that efficiency, safety and health must be sacrificed.

No one can expect a corps of examiners to do its best work in dimly lighted basement rooms that are damp and unwholesome, nor can it be expected to give care and proper attention to the examination of applications when its personnel is crowded, eight or more into a room hardly of a size to accommodate two, filed with desks, cabinets and files and the noise of the typewriter.

The prior art in the shape of United States and foreign patents, printed books and publications and printed and manuscript court and office decisions must all be easily accessible in order to insure a proper examination and determination as to patentability. With the condition of the Office

as above stated, one can readily see how the best service is not obtained. It must be understood that no criticism is made of the officials, commissioners or examiners, who are striving so hard under adverse circumstances to give the best service possible in the examination of applications.

These men, says a recent issue of *American Industries*, are sacrificing their lives and strength in an attempt to overcome the obstacles, well nigh insurmountable, against which they have to strive. They are capable, faithful, efficient and loyal—a force doing in its quiet and unobtrusive way as much and more for the upbuilding of the nation's welfare than those who, in more public places and with the burning of powder and fuss and feathers, are upholding the dignity of the nation.

The public and private records of the Patent Office are piled in tiers and boxes, often almost inaccessible for use, but readily accessible to fire, and if a fire were once to start among the inflammable contents of the Office no power could stay the flames, and the priceless, invaluable and absolutely irreplaceable records would be lost. There are also recorded in the Patent Office deeds of assignments of all titles to patents, which are of the greatest value in determining the ownership of valuable patents. As the foundations of the manufacturing, and to some extent the commercial interests of this country rest on patents, the loss of such documents by fire or otherwise would be a tremendous blow to the trade of the country.

Furthermore, the force employed in the Patent Office is large and growing larger. Many of them are men and women well advanced in years, who have long been in the service of the government, and, hemmed in as they are by filled offices and corridors, a fire could not take place without a consequent great loss of life. It is an American characteristic to "take chances," whether by the individual or the government. It needs a disaster like the Iroquois fire or the sinking of the Titanic to attract our attention, and we forget very quickly. It is to be hoped that no such calamity will be required to arouse public sentiment in this case.

In many of the reports made and bills introduced it has been contemplated that changes can be made in the present Patent Office to accommodate the growing business of the government. It would seem, however, that while there is extra open space within the present Office, and alterations and additions might be made to the present building, such a plan would seriously interfere with the working of the Office and in the end would not be as satisfactory as the acquisition of a new site and the erection of an up-to-date business building thereon.

This country is far behind other countries in this respect. It is said that we are a nation of inventors. America is proud of its inventive genius, which has contributed perhaps more than any other cause to the present position of the republic; and yet we patiently permit archaic con-

ditions to exist in the Patent Office. England and Germany have spent millions of dollars in new patent offices, which are fully equipped for efficient work, while the number of patents applied for and issued in those countries is considerably less than those applied for and issued in the United States.

The proposed site for the new structure is on the park fronting the east front of the Capitol. It would be a companion to the Congressional Library, and would complete the rectangle of buildings, the sides of which are composed of the House and Senate Offices. As suggested in the bill, the building would harmonize with others in the vicinity and would help in the general scheme of beautifying the Capital city. But there is another reason for the choice for this particular site. Copyrights are kept in the Congressional Library, and patent attorneys frequently have to handle this work. They are also obliged to consult law volumes and records in the Library—many of these volumes being out of print and inaccessible elsewhere.

Representative Thomson thinks that it would be a good plan to have the Library connected with the proposed Patent Office by underground pneumatic tubes, so that books and records could be interchanged between the buildings with ease and speed. This system is now in operation between the Library and the Capitol, and works most successfully, facilitating business and making access to the books more convenient. A building such as that described could be erected at an outside cost of \$5,000,000 and the Patent Office has, as already noted, considerably more than that to its credit in the United States Treasury.

We also wish to commend the scheme of having the building include a "hall of invention," where could be placed the models that represent, to a certain extent, the history of invention in this country. Many of these models are now displayed in the National Museum, and the early attempts to produce steam locomotives, automobiles and flying machines, as well as other devices, are most interesting. Some other models are scattered throughout the country. They should be collected and placed where they could give a bird's eye view, as it were, of the state of the art at different periods.

When one thinks that we can spend fourteen millions of dollars for a battleship that will be scrap iron in ten years, it would seem that the expenditure of \$5,000,000 for a building for the Patent Office that will endure for generations should be a very simple thing. The battleships may give prestige to our nation's honor, uphold us in foreign fields and preserve us from foreign entanglements, but a new Patent Office will intimately reach and touch the lives of many millions of our citizens every year.

It is hoped that every manufacturer and inventor in the United States, and every one interested in the welfare of the country, will write to his Representative and Senator asking their co-operation in the consideration and passage of the bill in question.

New Climbing Apparatus.

The unusual paraphernalia of steel hooks, spikes and straps used by the lineman in climbing telegraph poles and the like, is dispensed with in a new invention. This consists of a simple circular clamp, with handles that grip the post. The upper and lower clamps are moved alternately, and to the lower one are attached convenient stands for the feet. The weight of the body makes the handles grip tight and holds the clamp immovable until the lineman transfers his weight to the upper section. When he raises his feet, the clamp moves smoothly along to lock itself again when any weight is thrown on it. The upper part being fastened to a waist strap, the climber has full use of both hands—a great advantage to any work in the air.

Glass Rooms in Hospital.

Individual glass rooms, with private telephones, are to be provided for patients recovering from infectious diseases in a new isolation hospital in Chicago. Instead of being grouped together in a general ward, the patients will have private rooms, separated by an air-tight glass partition from a public corridor, so that their friends can see them and talk with them by telephone without exposing themselves to infection. This is an advance over the present system which prohibits friends from seeing or receiving letters from convalescing patients. The ward buildings of the new isolation hospital will be built in a circular form around the administration building, and arrangements are to be made for handling all infectious diseases except smallpox.

Machine that Computes Interest.

The adding machine seemed remarkable enough, but now we have a still greater mechanical marvel—a machine that gives the answers to all possible interest problems. It shows the calendar dates, the number of days, the interest amounts, and when the date of maturity falls on a holiday, all by a simple turn of a single handwheel. All interest problems are calculated in less than a second, and the most intricate questions of bank discount can be answered within a minute. The machine figures on any amount, at any rate, for any period of time. The calendars are perpetual, and the holiday detectors can be easily arranged to provide for the number of holidays peculiar to any special locality. Interest calculations in foreign money are figured as easily as in American money, as the machine serves for marks, francs, pounds, etc., as well as dollars.

Breathing Under Water.

Since the fall into water is less dangerous than a fall onto hard earth, it is obvious that hydroaeroplanes have a decided advantage over ordinary airships. The hydroaeroplane is adapted to float on the water; but recent accidents have shown that further protection must be provided

for the occupant of the plane. In case of an involuntary fall, the airman should have equipment enabling him to breathe for a time, at least, below the surface of the water. A life saving outfit resembling those used by men in submarines, has been invented by a German. It is a breathing apparatus providing for air purification, and requires respiration through the mouth, the nose being clamped shut. The equipment consists of a cylinder filled with oxygen, a potash cartridge for absorbing the carbonic acid, a breathing bag arranged on the airman's back, a mouthpiece, nose clamp and some rubber tubes. The vitiated air passes through the potash cartridge, there losing its carbonic acid and absorbing new oxygen, so that it is fit to be returned to the breathing bag. The whole apparatus is fixed on a swimming vest made of rubberized fabric. As there are no brass castings or other heavy fittings the equipment is very light. It can be easily and quickly adjusted, and will add greatly to the safety of travel in this new manner.

Baseball in the Theater.

Something new in the way of an enormous score board will next season be put before the fans who cannot watch the game itself. The field in this case is so large that it occupies the entire width of a theater stage. Two grooves says the *Technical World Magazine* completely encircle the diamond, in one of which the fielders move and in the others the base-runners. The groove is really a track into which a small wheel attached to each base runner fits and, as he moves from base to base, the wheel revolves and imparts a running motion to his legs. The players are manikins, 18 inches high. They come up on the field through holes, and are operated through a system of levers below. The levers operate the arms as well as the legs. At the foot of the manikin is a small dry battery, and from this to the hand is a fine wire carrying current to a half candle power lamp. If the manikin goes through the motion of catching a ball, two of the levers are pulled down and a small button is pressed, lighting the lamp. When the light goes out, the ball is supposed to be thrown. When the batter hits the ball, say to the short stop, the lights to the outfield are lit in succession until the short stop runs over, the light in his hand appears and he throws to first baseman. If the runner reaches first base before the light appears there, it is an indication that he is safe. Every move is made with the fidelity of a real game, and whenever this ingenious apparatus has been shown, it has aroused enthusiasm.

History of the Thermometer.

Before the seventeenth century men could only judge of the amount of heat prevailing at any place by their personal sensations, and could only speak of the weather in a very indefinite way as hot or very hot, cold, or very cold. In that century several attempts were made by scientific experimenters by means of tubes containing oil, spirits of wine, and other substances to establish a satisfactory

means of measuring heat: but none of them proved successful. Even Sir Isaac Newton, who applied his great mind to this work, and also the noted astronomer, Halley, failed in their attempts to produce a heat measure.

It was reserved to Gabriel Daniel Fahrenheit, an obscure and poor man, a native of Dantzic, to give to the world the instrument which has proved to be so serviceable to mankind. He had failed in business as a merchant, and, having a taste for mechanics and chemistry, began a series of experiments for the production of thermometers. At first he made these instruments with alcohol, but soon became convinced that the semi-solid mercury was a more suitable article to use in the glass tube.

Fahrenheit had removed from Dantzic to Amsterdam, and there, about the year 1720, he made the mercury thermometer, which has ever since been fashioned much like the original.

The basis of his plan was to mark on the tube the two points, respectively, at which water is congealed and boiled and to graduate the space between. He began with an arbitrary marking, beginning with 32 degrees, because he found that the mercury descended 32 degrees more before coming to what he thought the extreme cold resulting from a mixture of ice, water, and sal ammoniac. In 1724 he published a distinct treatise on the subject of his experiments and the conclusions that had resulted therefrom.

Celsius, of Stockholm, soon after suggested the more rational graduation of 100 degrees between freezing and boiling point. This was the centigrade thermometer. Reaumur proposed another graduation, which has been accepted by the French, but by far the largest part of the civilized world, Fahrenheit's scale has been accepted and used, with 32 degrees as freezing, 55 degrees as temperate, 96 degrees as blood heat, and 212 degrees as boiling point.

It is true that the zero of Fahrenheit's scale is a solecism, since it does not mark the extreme to which heat can be abstracted. This little blemish, however, does not seem to have been of any practical consequence.

The Biggest Telescope.

The gigantic telescope that the Carnegie Solar Observatory is to possess on the summit of Mount Wilson in California will be by far the most powerful instrument of observation that man has ever turned upon the heavens. It will be even a greater advance in its line than the mighty Imperator is among steamships.

A year or two ago it looked as if it might prove impossible to construct this immense instrument, because the disk of glass, made in France, to be shaped into a concave mirror at Pasadena, exhibited bubbles and imperfections which, it was feared, would interfere with its usefulness. But further examination indicates that the difficulties may be avoided, and the work of grinding and polishing is going forward.

This telescope will have a clear "aperture" of 100 inches, or 8 feet 4

inches. By aperture is meant diameter of the round glass as it is exposed to the stars.

There are two kinds of telescopes—"reflectors," which have a concave parabolic mirror to catch the rays of light and bring them to a focus, and "refractors," which possess, instead of a reflecting mirror, a compound lens, called the object glass, which brings the rays of light to a focus on the side away from the object under examination. In using a reflector the observer, so to speak, turns his back upon the heavens, while with the refractor he looks directly through the telescope toward the object in the sky. In both cases what he really sees is an image of the object formed by the rays of light in the focus, and he magnifies the image with a kind of microscope, called the eye-piece.

A REFLECTOR.

The new giant, as already indicated, is to be a reflector. Both kinds of the telescope have their peculiar advantages, but the reflector is superior in astronomical photography.

The great Lord Rosse telescope in Ireland, which was made in the nineteenth century, was long the wonder of the astronomical world. It is not a refractor, but a reflector, the maker having chosen to give it a closed tube, which has now been found to be unnecessary.

The Rosse telescope also has a very imperfect mirror, made of a special material called speculum metal, which is far inferior for the purpose to glass covered with a reflecting film. On this account the effective superiority of the new instrument will be much greater.

BIGGER THAN YERKES.

The new giant will be six and a quarter times more powerful than the great Yerkes telescope, the largest refractor now in existence, and about two and three-quarter times more powerful than the five-foot reflector already in action on Mount Wilson.

One naturally wonders what this telescopic monster will reveal in the heavens. It has been said that it will "show objects of the size of a man" on the moon. But this statement must be taken with a grain of allowance. If it were not for atmospheric difficulties, which we have at present no means of avoiding, a 100-inch telescope might bear a magnifying power of 10,000 diameters, which would bring the moon within an apparent distance of only a little more than 20 miles when it is actually nearest to the earth. In fact, however, it is doubtful if such a power will ever be employed, and if employed it would not give a distinct image.

But the immense amount of light gathered by the great mirror will make much lower magnifying powers far more effective than hitherto, and most interesting discoveries may confidently be expected from this cause. Its principal use, however, will be in photographing, on an unprecedented scale, the great nebulous clouds and streams and clusters of stars that abound in the universe. Here its superiority will be so commanding that man will almost seem to have provided himself with a new and marvelous eye for surveying the illimitable wonders of space.

A CLASSIFIED list of Patents issued during the month appears in each issue of the INVENTIVE AGE. This keeps inventors and manufacturers posted in the art in which they are most interested.—We will send, postpaid, to any address, printed copies of any U. S. patent, with specifications and drawings, upon receipt of 10 cents per copy.—Please give correct data in ordering.—Address.

THE INVENTIVE AGE PUBLISHING CO., 918 F St., N. W., Washington, D. C.

LIST OF PATENTS

—:o:—

Issued October 21, 1913.

MECHANICAL PATENTS.

(Continued from January Number)

Tool holder G. M. Henderson
Torpedoes, Sinking device for automobile F. M. Leavitt
Tower, Extension J. L. Ackley
Toy cannon J. D. Kilgore
Track, Portable and adjustable A. E. Kintner
Traction engine B. Holt
Tractor (Reissue) G. C. Jett
Tramway, Suspended-cable C. H. Vogel et al.
Tread, Metal R. G. Chase
Treating table, Revolving-leaf C. W. Albright
Tree surgery C. R. Myers
Trimming machine E. L. Keyes
Trolley conductors, Supporting structure for H. P. Davis et al.
Trousers attachment M. Hurwitz
Truck, Fire-ladder A. D. Crossley
Truck frames, Producing L. A. Randel
Trunk, Wardrobe P. R. Bolz
Tube-welding machine G. Ostermann
Tubes, Making seamless G. H. Baxter
Tubular body such as a pipe, hollow mast, or the like H. Siegwart
Turbines, Regulating device for tapped (2 pats.) G. Forner
Turbines, Steam regulator for W. Pape
Twisting machine G. L. Brownell
Type-setting and distributing machine H. C. Osborn
Type-setting and distributing machine, Printing B. O. Fauslow
Type-writer type bars, Releasing mechanism for W. D. Fricks
Type-writers, Type-bar mechanism for H. Moya
Type-writing machine S. J. Beaudry
Typographic machine R. M. Bedell
Typographical casting machine A. A. Ball, Jr.
Typographical line-casting machine H. Degener
Typographical machine J. McNamara
Typographical machine R. O. Boardman
Typographical machine P. T. Dodge
Vacuum brake J. T. Dickson
Valve L. B. Gray
Valve J. A. McElroy
Valve G. Fornaca
Valve float for closet tanks C. M. Brenner
Valve for water, Equalizing J. J. Lawler
Valve gear F. J. Cole
Valve gear, Combustion engine P. R. C. Lawrence
Valve gear, Steam engine W. S. Brown
Valve mechanism for internal-combustion engines V. P. Coffin
Valve-operating mechanism, Slide H. L. McDonald
Valve-protecting device H. B. Tesh
Valve, Radiator T. H. Schutt
Valve, Relief R. O. Murphy
Valve, Retaining T. E. Martin
Valve, Steam-engine E. F. Williams
Valve, O. O. Kruh
Vapor apparatus, Protecting mercury F. Rode
Vehicle chock F. Rode
Vehicle doors, Means for operating W. M. Simmons
Vehicle-driving mechanism R. C. Mangum
Vehicle-driving mechanism E. G. Hoffman
Vehicle, Motor J. W. Hamm
Vehicle platform gear J. Errett
Vehicle spring J. Frosig et al.
Vehicle wheel A. Schick
Vehicle wheel E. H. Whiting
Vehicle wheel, Road C. K. Welch
Vehicles, Worm drive for motor W. S. Morton
Vending and affixing machine, Stamp G. L. Reichhelm
Ventilator J. K. Robinson
Vessel-cleaning machine D. S. Runnels
Vessels, Signaling and passenger-carrying device for A. Grossich
Voting machine I. Waterman
Waist adjuster, Garment A. K. Hurst
Warp threads into the heddles, Device for the purpose of threading the O. von Meyenburg
Washing machine W. H. Stahl
Washing-machine gearing J. I. Woodruff
Watch M. Sporleder
Water heater S. Ellis
Water-jet ejector D. B. Morison
Water trap W. I. Staaf
Webbing holder A. S. Howard
Weeder and cultivator, Rotary A. E. and H. F. Vrooman
Welding E. Thomson
Welding barrels, Device for S. B. Eckert
Welding machine T. E. Creclius
Well-drill wrench G. F. Lebus
Well-drilling apparatus W. J. Travers
Welt, Box for holding rolls of C. P. Staunton
Wheel-rim, Detachable vehicle A. Schick
Wheel with multiple and balanced rims H. Lotte
Whiffletree B. F. Cummings
Winding apparatus J. G. P. Thomas
Winding machine A. I. Harvey et al.
Windmill attachment S. W. Vaught
Window frame F. E. Frisbee
Window furnishing C. C. Vosburgh
Wire coating and spooling machine M. D. Shiverick
Wire tie for bags, bales, bundles and packages J. S. Slosson
Wires, Drawing refractory A. J. Liebmann

Wireless duplex system R. Pfund
Wood, Impregnating L. Dautreppe
Wood, Preserving W. Schoeller et al.
Wrench C. Rush

Issued October 28, 1913.

MECHANICAL PATENTS.

Abrading disk C. Krug
Agricultural implement G. B. Briggs
Air or water motor W. H. Southwick
Airship F. Sifferman
Alloy, Copper-aluminum E. D. Gleason
Amphidizing apparatus C. S. Bradley
Animal trap J. S. C. Sower
Animal trap W. Niebuhr
Aquatic pleasure structure J. A. Miller et al.
Atomizer, Adjustable impact R. Schorr
Auger, Expansion earth F. H. Chase
Automobile E. R. Hewitt
Automobile attachment J. W. Golden
Automobile attachment T. C. Bean
Automobile draft attachment B. Urquhart
Automobile elevator, Portable B. F. Wilson
Automobile wheel and tire G. M. Davenport
Automobile wheels, Endless tread for T. Douglas
Balers, Wiring mechanism for hay A. L. Lamar
Barrel, Collapsible J. S. Harmon
Basin, Catch E. C. Brown
Bath-room fixture G. F. Arburg
Battery holder G. N. Waterbury, Jr.
Battery power and charging equipment, Storage C. H. Thordarson
Bearing M. Reid
Bearing and surface, Self-lubricated wood L. S. Bache
Bed-rail attachment M. B. Okun
Bed, Sofa or davenport A. G. Sharp
Bedstead, Metal H. Silver
Bedstead, Metal M. Dunner
Beer cooler (2 pats.) F. Turek
Belt-coupling device R. B. Codling
Belt skiver C. A. Salm
Bicycle and motor-cycle attachment Z. Alesani
Bicycle wheel suspension A. H. Stewart
Bitumen or bitulithic materials, Treating F. O. Kaempf
Boiler F. Goff
Bolt-fastening B. C. Smith
Book-trimming machine, Automatic continuous T. C. Welch
Books, Leaf or pocket for fly G. Langbein
Boot and legging, Riding N. C. Shiverick
Boots and shoes, Machine for the manufacture of O. Ashton
Bottle cover H. Rohrdantz
Bottle, Non-refillable J. Gabrielson et al.
Bottle washer P. Kempe
Bottles and other receptacles with liquids, Apparatus for filling C. J. Matthews et al.
Box fastener P. H. Lettre
Boxes, packets, wrappers, and the like, Fastening or sealing E. Colegate
Brake shoe A. L. Streeter
Bread board A. Golden
Breath deflector or guard J. E. Cooper
Breech mechanism A. W. Schwarzlose
Brick machines, Cut-off mechanism for H. K. King
Bridle bit H. W. Brown
Brush A. L. Holtzman
Bundle tie W. H. Sedam
Butt, hinge, and the like H. Fleischer
Butterfly, Artificial F. Sheline
Buttonhole piece F. L. Harmon
Cabinets, Attachment for W. E. Austin
Cable T. Gore
Cable-carrier apparatus (2 pats.) G. A. Amsden
Cable, Submarine F. Jacob
Calculating and printing machine H. R. Cowan
Camera focusing device H. T. Oliver
Camera shutter, Photographic A. G. Pickard
Can cover, Cylindrical C. L. Wagandt
Car brake beam, Railway S. A. Crone
Car, Convertible J. M. Coleman
Car-coupling device S. P. Bush
Car-door arrangement, Dump H. Asper
Car door, Freight G. H. Judia
Car-door hanger G. E. Merritt
Car draft gear, Railway W. F. Richards
Car, Hand J. M. Taft
Car step, Supplemental G. O. Heinrich
Carburetor A. L. Haynes
Card support for dummy hands G. F. Wedderburn
Cartons, Automatic device for receiving and discharging W. L. Montgomery
Caster, Furniture L. A. Climer
Catch lock O. J. Sundgaard
Cement-shingle machine J. D. Hoffman
Centering tool W. F. Haddeck
Chamber attachment M. E. Horv
Charging apparatus H. J. Rowe
Cherry-stemming machine F. R. Smith
Chisel gauge D. McNeil
Chocolate-manufacturing apparatus O. Thurmman
Circuits, Vapor rectifier for high-potential (2 pats.) J. L. R. Hayden
Clamping device W. N. Sawyer
Cleaner holder I. G. Kelley
Clip-attaching device J. B. Mullally et al.
Clothes-line reel J. J. Buser
Coat, Combination M. H. Schiller
Coat, Storm A. J. and M. F. Vagas
Cock, Combination C. H. Pitt
Cock, Gauge L. P. Welfey
Coffer dam N. F. Ambursen
Coin-controlled lock W. S. Farnsworth
Colors suitable for use as pigments, Azo H. Clingenstein
Computing device G. E. Leonard
Computing device J. Williamson
Concrete-wall mold E. A. Isles
Conduit fish-wire machine B. Dahl
Cone centers, Equipment of T. H. Mack
Confection and making same J. C. Davidson
Container-supporting device A. J. Degenfelder
Controlling mechanism H. C. Miller
Conveying apparatus Z. Rodakowski
Conveying products, especially dry fish, Means for J. Schrepler
Copper from ore, Extracting F. Laist
Cord holder and dispenser device C. C. Helman et al.
Corn husker J. H. Pierce
Corn-silking machine J. C. McIntyre
Cotton cleaner J. F. Appleby
Cotton gin I. Meurling
Cotton-picking machine A. St. Onge
Couch and bath tub, Combined W. C. James
Creel board H. W. Oweu
Crutch J. Bauerle
Cuff, Reversible S. Binswanger
Culvert J. H. Schladly
Curtain bracket A. E. Kyllonen
Curtain-rod support J. Kroder
Curtain roller E. E. Whitmore
Curtain-supporting device A. Loton
Deafness, Apparatus for use in the treatment of A. Rosenberg
Dedating device W. F. Sprick
Derrick J. Obstler
Desiccating C. Tellier
Diacydyl and higher acyldated compounds from aminoazo bases, Manufacture of H. Reinhardt
Die stock A. M. Berkshire
Distributing apparatus C. Hennessee
Diving apparatus C. F. Darssin
Dock, Ore M. Toltz
Door and window stiles, Machine for cutting grooves in F. V. Phillips
Door check W. Zindel
Door-closing and checking mechanism P. A. Smithurst
Door lock F. Warcup
Door-locking mechanism G. E. Merritt
Draft gear J. F. Courson
Draw-gear and buffing apparatus J. H. McCormick
Dredging device (coupling) E. F. Berry
Drill-bit lifter M. McCarthy
Drinking fountain P. J. Madigan
Drinking vessels, Sanitary attachment for lip contacts of C. H. Rich
Driving mechanism G. S. Blakeslee
Drying and treating fabrics and other materials W. M. Grosvenor
Dye, Azo E. Fussenegger
Dyes and making them, Green anthraquinone O. Bally
Electric circuits from excessive rises in pressure and similar disturbances, Means for protecting R. Rudenberg
Electric heater W. S. Andrews
Electric regulator, Automatic P. Werner et al.
Electrical installations, Safety appliance for W. F. Force
Electrically-heated apparatus, Automatic controlling device for B. W. Brawner
Electromagnetic motor A. I. V. Wilson
Embroidering machine, Hand W. A. Radous
Embroidery frame A. H. Altfuldich
Engine-cooling system, Internal-combustion C. W. Baker
Engine primer, Internal-combustion W. J. Presley
Engine-starting device G. J. Burkhardt
Engine-starting device, Explosive L. M. Mowe
Envelope J. Fanfani
Erasing machine D. M. Lemon
Excavator, Dipper R. Jury
Explosive engine R. C. Mitchell et al.
Farm gate M. Di Lorenzo
Fastener J. H. Jerrim
Faucet C. J. Coffman
Feeding device J. J. Doidge
Filaments, Manufacture of incandescent G. Dobkevitch
Filing case, Record E. Pooler
Filter, Chemical C. S. Bradley
Fire-extinguisher A. C. Rowe
Fire-resisting curtain E. H. McCloud
Firearm M. F. Smith
Firearm, Repeating F. M. Osborne
Firearms, Folding rest for H. Nikodem
Fireproofing wood W. A. Hall
Floor-smoothing composition H. W. English
Floor structure R. J. Dixon
Floor and other places, Securing or fixing machines and other objects to A. Maurer
Flue cleaner J. P. Cullon
Fluid-pressure brake J. W. Cloud
Fluid-pressure brake W. V. Turner
Flush-tank-operating device B. O. Tilden
Fly screen N. Lewis
Fly trap J. H. Hanes
Flying device B. Flick et al.
Flying machine J. N. Williams
Flying machine C. R. and A. D. Wittenmann
Flying machine C. E. Baker
Food compound A. Hamilton
Forceps, Animal G. Lecuyer
Foundation and structure Subaqueous W. Butler
Frame and easel I. W. England
Furnace W. A. Hall
Furniture, Convertible W. H. Curtice
Fuse, Mechanical time H. Thiel
Game apparatus E. Krancher
Garment W. and L. Goldstein
Garment W. L. Siewers
Garment fastener M. B. Grout et al.
Garment supporter J. A. Shafer
Gas appliance, Safety H. J. Long
Gas burner J. B. Anderson
Gas burner C. F. Krugh
Gas burner C. H. Hook
Gas burner, Multiple E. E. Frederick
Gas engine E. E. Slick
Gas engine G. D. Eighmie
Gas, Making G. J. Weber
Gas producer L. Friedmann
Gases from sulphite towers, Recovering escaping acid J. A. De Cew
Gearing C. G. McConville et al.
Gearing H. F. Snyder
Glazing windows and the like and device therefor H. D. Hope
Glove, Baseball J. Gamble
Golf-putting, Device for practicing C. M. Treadwell
Gun, Marble G. C. Kennedy
Gun, Semi-automatic W. H. Driggs
Gun sight C. E. Bechdoldt
Guns, Breech mechanism for E. Schneider
Hammock, Bifurcated I. E. Palmer
Hand saw O. C. Frame
Hat-pin protector A. E. Todd
Hat-pin shield, Lady's J. M. Norwood
Hay buck, Self-cleaning horse loft R. J. Francis
Heating apparatus C. B. Collier
Heel logs, Machine for making W. P. Bosworth
Hinge J. P. McKinney
Hinge A. J. Kugler et al.
Horse bit F. and E. Swales
Hose clamp H. M. Welshans
Hose-coupling with automatic draining valve principally for railway trains, Steam-heating V. Biro
Hose supporter E. Jennings
Housekeeping structure W. C. James
Hub, Spring wheel H. H. Hallett
Hydrogen under pressure, Working with C. Bosch
Ice-cream-cone dispenser M. H. Fisher
Ice-cream freezer, Continuous J. H. Carpenter
Ice-making-machine cooling attachment W. Graaf
Ignition generator B. Ames
Insulating fabric, Making G. F. Dreher
Internal-combustion engine O. A. Anderson
Internal-combustion engine W. J. Wright
Internal-combustion engine G. R. Rich
Internal-combustion engine P. S. Claus
Internal-combustion engine E. G. Bogusch
Internal-combustion engine H. McCormack
Internal-combustion engine D. Roberts et al.
Irrespirable atmosphere or under water, Apparatus for use by persons working in A. T. Winborn
Irrigating system P. E. Erickson
Journal box I. A. Randel
Journal-box lid G. A. Woodman
Keyhole guard K. Oswald
Knife cylinder W. Stanat
Knockdown box B. L. Behrendt
Lamp C. G. Myers
Lamp attachment, Automobile W. C. Pfahler
Lamp, Automobile T. P. Driver
Lamp control, Automobile B. Stephen et al.
Lamp, Incandescent oil J. Doorenbos
Lamp, Portable acetylene A. L. Hansen
Lamp-shade holder S. B. Van Ranst
Latch, Hydraulic J. L. Garnett
Lathes and other machines, Collet for C. F. Schultis
Laundry iron D. H. Turner
Leather-skiving-machine knife A. M. Alexander
Leather-working machine F. Wayland
Lighting and ignition device J. Berg
Lights, Occulting device for W. A. Moffett et al.
Limb, Artificial T. E. Auvil
Limb, Artificial J. B. Stage
Liquid-distributing apparatus E. A. Giencke
Liquids, Safety-closure for containers of inflammable M. Jasper
Lock W. A. Ratcliff
Lock M. Boldizs
Locking device J. S. Lyons
Logging cars, Releasable stake for H. Harder
Loom, Pile or tuft fabric J. A. Clark et al.
Looms, Automatic stopping device for lace T. Thompson
Looms, Change box-motion for power G. Schwabe
Looms, Pile-cutting mechanism for tuft-fabric J. T. Cyr et al.
Machine of the turret type for turning and like operations H. Austin
Machine tools, Cutting-lubricant attachment for E. P. Bullard, Jr.
Mail-bag-delivering device E. H. Appleby
Mandrel, Expandable H. J. White
Manure spreader G. G. Mandt et al.
Match splints, Treating W. A. Fairburn et al.
Matting-roughing machine J. M. Bartheaux
Matting stock, Preparing J. M. Bartheaux
Measure and stopper, Combined J. F. Peter
Measuring device, Liquid C. P. Ross
Melting furnace, Electric L. E. Howard
Metallic tie J. Albright
Milk containers, Combined rack and seal for submerged E. L. Wescott
Mixing or blending machine W. L. Lawson
Moistener, Stamp R. H. Wilmer
Moistening device, Envelope T. Moczydlarz
Mold L. Levine
Molding W. Goodrow
Mop holder A. Waymire
Mouse or rat-trap E. F. Sebesta
Mouthpieces, Antiseptic protector for C. T. Porter et al.

Mower, Lawn F. Yank
Music-leaf turner F. Hofmann
Music-leaf turner H. C. Townner
Music-leaf turner G. E. Ferguson
Mustard, Manufacture of H. C. Russ et al.
Nodulating materials L. P. Ross
Non-skidding device W. G. Murray
Nozzle for hydraulic motors W. A. Doble
Nozzle, Hydraulic regulating W. A. Doble
Nut and making the same, Self-locking D. O. Ward
Nut lock S. L. Kyle
Nut lock R. Bixby
Nut, Self-locking M. Jacobs
Nut, Self-locking D. O. Ward
Nut washer and bolt, Combination lock B. R. Jones
Oil burner H. P. and H. I. Ingram
Oil burner R. B. Warner et al.
Oil burner, Crude E. E. Comstock
Oil, Preparing an E. Richter
Oils and fats from oil seeds and other vegetable raw materials containing oils and fats, Extracting R. N. Riddle
Orchard heater R. G. Smith et al.
Ore concentrator F. Picone
Ores by a continuous process, Mechanical system for roasting sulphurous X. de Spirlet
Organ-stop mechanism R. Hope-Jones
Oven, Portable C. O. Woodrow
Oxidizing sulphite by means of air or other oxidizing gas E. Collett
Package fastener J. F. Bjurlund
Painting spools, Apparatus for J. E. Lock
Paints, Making F. F. Bradley
Paper bottle W. Giesseman et al.
Paper gauge C. H. Lucas
Pen holder or support, Fountain, C. Ridderhof
Pencil sharpener E. F. Estes
Percolator I. Gifter
Perforating machine C. L. Lilleberg
Phonograph, Vibrating record D. M. Bliss
Photo printing machine, Automatic G. M. Dye
Photographic plates, Apparatus for treating T. Bander
Photographic-printing machine H. A. Anderson
Piano player, Automatic J. Schwertner
Piano-playing mechanism B. R. Van Valkenb
Piano-playing mechanism B. R. Van Valkenb
Picture films, Machine for detecting defects in motion R. Nicolet
Pipe bowls, Apparatus for treating H. S. Chapin
Pipe union, Ball-and-socket W. Stafford
Plant protector E. R. Drake
Planter, Corn L. A. Anfinson
Plaster boards used in partition construction, Supporting device for M. H. Jester
Plaster of Paris, Treatment of H. T. Beans
Plate-holding device P. W. Weston
Plow G. E. Harrison
Plow C. W. Dickinson
Plow F. E. Davis
Plow G. I. De Force
Plow A. S. Poe
Plow J. Woods
Pneumatic conveyer system W. McClave
Pneumatic dispatch-tube apparatus E. A. Fordyce
Pneumatic dispatch-tube apparatus J. G. Maclaren
Pneumatic dispatch-tube system B. C. Batcheller
Post anchor P. T. Bailey
Poultry fountain D. L. McCuningham et al.
Power press (2 pats.) E. W. Zeh
Power-transmitting mechanism J. E. Bissell
Preserving plant leaves, flowers, butterflies, and the like T. Reinherz
Primary battery A. L. Saltzman
Printing apparatus, Ticket F. Eller
Printing press H. M. Barber
Printing press inking fountain J. E. Riable
Printing-press tripping mechanism A. B. Ellery
Printing presses, Slip-sheet-feeding device for H. M. Barber
Projectiles, Tracer for J. B. Semple
Propeller J. E. Bissell
Proportional meter (2 pats.) T. B. Wylie
Protractor R. C. Gorbey
Pulp thickening and agitating apparatus J. V. Dorr
Pulver-breast E. Guerrero
Pump for internal-combustion engines, Fuel H. R. Setz
Pump governor R. B. McGowan
Pump, Rotary P. Slesazek
Radiator A. F. Rosen
Radiator sections, Assembling F. A. Feldkamp
Rail C. F. Weeber
Rail fastening W. J. Schwab
Rail joint M. M. Shaw
Rail joint W. F. Sellers
Rail-straightening device J. S. Wagner
Rail-supporting device D. L. Braine
Railway cross tie L. C. Mooney
Railway metallic tie J. A. McCracken
Railway switch C. A. Turner et al.
Railway ties, Shoe for F. Still
Railway track F. K. Holmsted
Railway-track structure H. M. Coulter
Ramming apparatus, Roll H. P. Macdonald
Ratchet wrench W. Hanning et al.
Razor-blade holder, Safety B. F. Stamm
Receptacle, non heat conducting C. C. Wilson
Resilient ball F. A. Cigol
Resilient wheel E. A. Schlairet
Retaining mechanism F. N. Hall
Revolvers, Mechanism for rotating and locking the cylinders of E. Guerrero
Roadways, railway beds, sidewalks, and the like, Making M. A. Popkess
Roller construction, Winding G. H. Demore
Rolling bars or girders of I, H, U, or like section J. Puppe
Roofing, &c., and preparing the same, Material for J. W. Aylsworth
Rotary engine H. A. King
Rotary engine R. J. Davidson
Rotatable table J. M. Bryant et al.

Sad iron, Gas-heated H. A. Koenig
Runner for wheeled vehicles, Detachable C. A. Carlson
Sad iron, Gas-heated A. H. Davies
Safe and vault doors, Electric protective device for H. and H. R. Huhn
Sash holder, Window O. M. Edwards
Sash weight, Sectional N. A. Petry
Sausage meat or the like, Artificial skin or gut envelope for D. Manivet et al.
Saw A. Brazier
Saw clamp J. S. Dikeman
Saw pin L. P. Walcher
Screw press F. P. Renneburg
Sealing bottles K. L. Kithil
Seed drills, Double-disk attachment for O. G. Rieske
Separator disks, Machine for cleaning J. Hansen
Sewage or the like, Purifying W. O. Travis et al.
Sewing machine A. Eppler
Sewing machine J. R. Moffatt
Sewing machine, Lock-stitch A. C. Chase
Shade adjuster, Window H. Oglesby
Sharpener for lawn mowers N. Speck
Sharpener, Gin-saw J. Rice
Sharpening cutting instruments, Machine for M. S. Weaver
Shears J. Farrington
Shingle W. S. Orth
Shock absorber G. H. Dangleman
Shock loader O. L. Gilliland
Shovels, Turning device for steam W. L. Strahlem
Shuttle, Hand-threading R. N. Allen
Shuttle-thread-replenishing mechanism F. F. Dorsey
Sickle for mowers, &c., Rivetless J. A. Lackey
Signaling system, Electric C. E. Lee
Silo G. P. Winsall
Skein or thread holder N. Madsen
Skirt marker E. A. Havens
Sled A. Kliment
Smoking pipe J. D. Maier
Snap-switch lock attachment C. D. Platt
Soil, Sweetening and fertilizing the L. Cheeseman
Sparg plug (2 pats.) A. Schmidt
Spinning apparatus, Traverse-motion for yarn A. E. Rhoades
Spinning machine W. H. Young
Spring W. A. Doble
Spring roller, Extension S. E. Mallory
Sprinkler J. H. Keys
Stay bolt (10 pats.) E. I. Dodds
Stay-bolt cutter, Self-feeding R. Hall, Jr.
Steam engine W. P. Ruble
Steam generator A. Hackett
Steam-generator furnace J. Ramacher
Steamship furnace C. A. Kuenzel
Steel and steel alloys, Treating W. H. Jones et al.
Sterilizer A. E. Walden
Stirrup C. W. Stier
Stop motion F. H. Hall
Strainer, Coffee and tea H. D. Smith
Superheater boiler J. E. Bell
Switches, Connecting rod for E. F. Johnson
Tables, Foot-operated lock for pedestal C. S. Burton
Tables, Pedal-operated lock for pedestal C. S. Burton
Tag fastener F. G. Shuman
Telegraphic perforating receiver H. Bille
Telephone exchanges, Party-line system for automatic F. Aldendorff
Telephone system C. W. McGougle
Telephone-system station instrument A. E. Keith
Tempo-regulator, Automatic P. B. Olson
Thermal generator W. W. Coblentz
Thermostatic mechanism E. E. Gold
Tickets, Means of identifying railway P. F. Cutting
Tie plate (3 pats.) D. L. Braine
Tilling the soil, Machine for mechanically C. Ciccolini
Time register L. H. Friedman
Tire E. J. Shaut et al.
Tire-casing fabric H. J. Doughty
Tire casing, Forming a H. J. Doughty
Tire-deflecting cap J. H. Hard
Tire, Emergency automobile L. M. Tichenor
Tire fabric, Friction calender for H. J. Doughty
Tire, Vehicle R. L. Leach
Tire, Vehicle H. J. Doughty
Tire, Vehicle J. H. Tucker
Tires, Demountable rim for pneumatic C. R. Cantrell
Tobacco-leaf-stringing machine J. Merritt
Tobacco-leaf-stringing means J. Merritt
Tongs W. Peter
Tool S. Zimmermann
Tool holder C. Geiger
Tooth backings, Die for forming H. L. Crutenden
Towel holder E. A. Hood
Tower, Steel R. L. Allen
Toy bank L. S. Schwartz
Track gauge and level board H. F. Sutton
Track switch M. J. Henahan
Traction wheel A. Huffman
Transmission mechanism G. Jacobs
Trap W. F. Ilamann
Trolley J. J. Sabo
Trolley S. G. Valles
Trolley wheel or sheave A. E. Lineberg
Trough W. J. Vertrees
Truck, Car (2 pats.) W. S. Adams
Trunk fastener R. B. Fergusou
Tube-finishing machine, Collapsible F. Knapfer
Tubes, Process and apparatus for cross-rolling and expanding R. C. Stiefel
Tubes, Process and apparatus for piercing and rolling R. C. Stiefel
Turbine E. Anderson
Turbine, Expansible-fluid B. S. Church et al.
Turbine, Reversible steam A. Bonom
Turbine, Steam A. Bonom
Type-proofing gauge C. J. Taylor
Type-storing, assembling and distributing mechanism H. C. Osborn
Type-storing mechanism J. Alexander

Type-writing machine J. F. Smathers
Type-writing-machine ribbon-feeding J. Alexander
Type-writing-machine action J. Alexander
Undershirt and similar article H. H. Condit
Vacuum cleaner (2 pats.) J. W. Smith
Valve T. White
Valve F. Leadbeater
Valve, Engine A. M. Gilbert
Valve, Regulating G. W. Collin
Valve tube E. W. Caldwell
Vanity box L. Morse
Vapor absorber, smoke and soot preventer, and heat retainer G. H. Backmire
Vapor burner H. S. Thornton
Vaporizing apparatus (Reissue) G. Constantinescu
Vaulting horses, Caster mechanism for P. S. Medart
Vehicle safety appliance C. Brunswick
Vehicle top support B. C. Smith et al.
Vehicle wheel M. D. Krespach et al.
Vehicles, Tractable means for motor-driven J. B. Smay
Veil, Stormproof A. L. Boher
Velocipede support M. Zetschok
Vending machine, Two-compartment coin-controlled S. J. Kelly et al.
Ventilator L. P. Hynes
Wall tie O. F. Merwin
Walls and ceilings, Key-base for side R. D. Weakley
Washing machine, Cylinder H. W. Darrow
Watch fob R. B. Whitehead
Water closet J. P. Cowan
Water heater F. W. Reese
Water heater, Electric R. C. Boyer
Water meter G. B. Bassett
Water purification J. W. Hammett
Wave motor B. C. Shipman
Wave motor D. R. Olmsted
Wells, Apparatus for hoisting liquids from D. D. McCall
Wheel W. E. Babbitt
Wheel rim, Vehicle E. C. Shaw
Wheels, Separable rim for automobile W. M. Wirth
Winding machine H. M. Sprecher
Window C. A. Johnson
Window E. F. Chaffee
Window, Counterbalanced J. S. Doyle
Window screen G. W. Norton
Wire cloth or screen machine O. W. Childs
Wire-fabric-making machine W. A. Klimer
Woven fabric H. Le Doux et al.
Wrench O. W. Seipel
Yoke for draft gear (2 pats.) C. A. Carscadin et al.

Issued November 4, 1913.

MECHANICAL PATENTS.

Accelerating mechanism, Mechanically-operated W. Deats
Acids, Manufacture of tar L. and S. McDougall et al.
Acidylaminooxyarsenobenzene and making same, Derivatives of P. Ehrlich et al.
Acoustical instrument L. Lumiere
Addressing machine R. N. Rogers
Adhesive compound V. Xicovich
Aeroplane B. J. Pressey
Aeroplane H. C. Well
Aeroplane H. Podolsky
Agricultural implement D. B. Vanderwater
Airship J. C. Schleicher
Aluminum sulphate, Preparing H. F. D. Schwahn
Aluminum, Treatment of the surfaces of A. Lang
Amusement device W. R. Graham
Animal trap T. J. Burke
Animal trap W. T. Brantitzky
Animal trap K. E. Johansson
Antiskid attachment for automobile tires J. G. Florack
Arch support J. W. Arrowsmith
Atomizer C. Hassler
Automatic lubricator M. Deutscher
Automobile E. R. Hewitt
Automobile muffler E. L. Dewey
Automobiles, Automatic safety crank and gear shift for F. H. Arnsburger
Bail for flower pots and like articles, Detachable G. B. Hart
Bakers' products, Making G. Peters
Barbers' checks and accessories, Sanitary holder for F. J. Cox
Barrette W. J. Hines et al.
Battery box C. A. Mahla
Bed riser F. E. Sloan
Belt tightener W. E. Farrell
Billiard-cue tip G. Ankenmann
Binder, Loose-leaf W. P. Pitt
Binder, Loose-leaf (2 pats.) J. C. Dawson
Block-making apparatus, Plastic C. W. Gill
Boiler-tube attachment W. E. Thompson
Bolster-stake holder (2 pats.) C. Faust
Bolsters, Constructing A. L. Hastings
Book and manuscript holder, Note S. C. Osborn
Books to stands, Means for fastening W. Templin
Boron nitrid, Manufacture of R. Heyder
Bottle closure C. D. Boyer
Bottle, Drenching J. B. Mooney
Bottle, Non-refillable L. J. Stilling
Bottle, Non-refillable E. Fournier
Bottle, Non-refillable W. Rakowski
Bottle, Rectum D. T. Quigley
Bottle-washing machine J. T. H. Paul
Bowling alley H. F. Cook et al.
Bracelet unit W. E. Coles
Broiler and oven, Combined S. L. Richards
Brush W. H. Mills
Brush, Hat H. J. Trah
Brush, Tooth E. C. Gruhl
Buckle for garment supporters, Adjusting A. V. Brown
Buffer for swinging indicator frames J. H. Rand
Bullet, Mushroom H. W. Starkweather
Bullet, Mushroom T. C. Johnson

Bullet, Mushroom T. C. Johnson
Burnishing machine W. Jackson et al.
Button-attaching machine C. H. T. Hagston
Button-making machine (2 pats.) P. F. Dams et al.
Button-making machine, feeding device P. F. Dams et al.
Cable clasp, Wire W. C. C. C. C.
Cableway C. C. Smith et al.
Calculating machine J. H. C. C.
Calculator, Time K. M. Johnson
Can-double-seaming machine E. W. C. C.
Can-top set and wrench G. E. C. C.
Cane frame for caps and hats J. B. C. C.
Capping tool D. M. Ressler et al.
Capsule-filling machine A. C. C. C.
Car center-bearing R. D. Lock et al.
Car construction E. G. C. C.
Car coupling W. R. H. C. C.
Car door, Box R. L. Burgoon
Car-door spreader R. V. Sage
Car-door spreader, Dumping R. V. Sage
Car, Dump or drop-bottom A. Campbell
Car fender and brake, Combined J. A. Laughlin
Car friction draft-rigging, Railway J. F. O'Connor
Car-heating system E. H. Gold
Car, Hopper H. C. Priebe
Car motor W. F. Davis
Car replacer J. L. Klaxon
Car roof J. L. Mohan
Car-roof construction (2 pats.) J. L. Mohan
Car running-gear and draw-bar attachment, Mine J. F. Fox
Car running-gear, Railway A. R. Angus
Car-starting device, Motor R. Kinney
Car window construction W. H. Rossman
Cars, Speed control for motor R. Huff
Carburetor A. P. Brush
Carburetor W. H. C. Higgins, Jr.
Carbureters, Mixing fuel for W. H. C. Higgins, Jr.
Carpet-cleaner, Vacuum W. H. Hall
Carpet-cleaning and renovating machine B. Becker et al.
Carriage, Baby F. L. Moring, Jr.
Cattle fastener P. Schuppli
Cement-block machine E. A. Switzer
Cement-shingle structure E. M. Walton
Chuck J. Hartness
Churn B. O'Hara
Churn, Sanitary C. De Forest
Cigar machine H. S. Marsh
Cigar machine B. T. Burchardi et al.
Circuit breaker A. Guerra
Circuit-closing device W. W. Alexander
Clamping device A. J. Sutch
Clutch H. Mann
Clutch and the like, Friction J. M. Hewitt et al.
Clutch, Magnetic A. T. Collier
Clutch mechanism L. E. Waterman
Clutch mechanism J. T. Williams
Clutch-operating mechanism O. Lambert
Coal separator G. H. Elmore
Coffin W. F. Moore
Coin-controlled machine O. B. Phillips
Coin-controlled mechanism E. J. Orndol
Coin-operated mechanism P. Wiggen
Coke quenching and conveying apparatus A. Brunner et al.
Colloidal compounds, Preparation containing C. Paal et al.
Coloring matter, Azo E. Ulrichs
Combing machine J. Good
Combustion engine H. Junkers
Commutator R. E. Noble
Composition for rubbing and finishing varnished and other surfaces J. D. Garlick
Concrete mold B. E. Grant
Concrete walls, Core for use in molding G. Clark
Concrete-waterproofing composition C. Ellis
Condenser, Electrolytic R. D. Mershon et al.
Condenser, Electrolytic R. D. Mershon
Container-forming machine J. M. Taylor
Conveying apparatus H. Seck
Cooking device, Electrically-heated H. P. Ball
Cooking utensil, High-pressure steam T. J. Nash
Cord cutter L. E. Barnard
Coring machine, Tomato A. P. Wolfe
Corn husking machine T. Steichen
Corn-husking machines, Feeding device for I. Woodring
Corn, Trimmer for butt-ends of J. B. Zimmerman et al.
Corset J. E. Heilner
Corset steel T. F. Somers
Cots, Adjustment for invalids R. R. Miller
Cotton for dyeing and bleaching, Preparing A. J. Dronsfeld
Cotton packer T. L. Kinne
Counter, Revolution C. Korte
Crane and derrick O. N. Gardner
Cranes, Suspension device for monorail S. H. Libby
Crank shaft A. De Coninck
Crate, Wire-bound H. G. Mead
Cream cooler B. E. Anglund
Culinary utensil F. E. Walk
Cups, Apparatus for making and vending sanitary J. Powers
Current apparatus, Alternating R. D. Mershon
Current electromagnetic controller, Alternating D. L. Lindquist
Curtain mounting, Vestibule E. E. Whitmore
Curtain pole G. G. Griffin
Cutting implement E. E. Beck
Cycles, Side car attachment for motor O. Overton
Dam G. Blaauw
Dam, Cellular G. Blaauw
Davenport and billiard table, Combined A. F. Hjort
Dental-engine stone and mandrel J. W. Welch
Dental plate-mold J. W. Greene
Diamond-polishing machine B. and G. A. De Graaf
Disk, Rotary C. H. McKee
Display device G. W. Pennebaker
Display form E. J. Ryan
Display rack E. G. Bennett

- Ditching machine E. B. Wilson
Divanette S. Lanes et al.
Door-controlling mechanism C. A. Carlson
Door fastener M. Schlis
Door mat R. N. Reynolds
Doors, Circuit-closing device for W. H. Fitch
Draft appliance J. A. Buchanan
Drawing, roving and spinning frames,
Clearer-roll for M. Gould et al.
Drill F. R. Weathersby
Drilling machine F. Stevens et al.
Drinking fountain A. H. Hartman
Drums, Differential adjusting rod for A. M. Hoskins
Dyeing machine R. P. Smith et al.
Dyestuffs, Brown azo K. Schirmacher et al.
Ear appliance for facilitating hearing A. von Suchorzynski
Educational device S. H. Fauning
Egg beater T. Holt
Egg carton E. F. Ward
Electric heater A. S. Cubitt
Electric machine, Dynamo C. E. Skinner et al.
Electric machine, Dynamo G. Sayre
Electric machinery, Dynamo C. A. Parsons et al.
Electric meter, Maximum demand W. E. Porter
Electric-metering system K. Markau
Electric storage device H. P. Ball
Electrical controlling and regulating apparatus G. T. Ashley
Electrical resistance unit E. J. Ovington
Electrode (2 pats.) R. H. Stevens
Electrograph R. S. M. Mitchell
Electrolytic diaphragm H. A. Wagner
Electro-magnets and solenoids, Means for controlling L. L. Tatum
Electroplating device L. J. Evans
Elevating device H. J. Maguire
Elevator bucket T. S. Maxwell
Elevator indicator J. D. Kneeder
Engine G. W. Marsh
Engine-cooling device, Internal-combustion J. F. O'Bert
Engine-lubricating system, Gas J. P. Farnam
Engine platform E. Pahl
Engine starter J. D. Kneeder
Engine starter, Gas G. W. Roth
Engine starter, Gas E. D. Bangs
Engine-starting device, Internal-combustion J. F. O'Bert
Entrail-cleaning machine A. Olsen
Envelope fastener G. W. Logan
Envelope, Safety O. L. Weimar
Excavating machines, Two-part dipper for W. S. McKee
Exercising stick A. Keresztfalvy
Extension table F. Frisina
Fan W. A. Sanders
Fare-register-actuating mechanism J. F. Ohmer
Faucet, Beer T. R. Beggs
Feathers, Holder and attacher for M. H. Tisne
Feed mixer R. H. Driscoll
Feeding mechanism C. J. Fancher
Feeding mechanism C. A. Cheshire
Filing cabinet A. C. Petsche
Filling and packing materials into receptacles, Apparatus for R. V. Craggs
Filter H. F. Maranville
Filtration E. Zahm
Fire alarm W. A. Freiwel
Fire-alarm box, Auxiliatized N. H. Suren
Fire-control apparatus, Naval A. H. Pollen et al.
Fire door M. Gilmore
Firearm A. T. Dawson et al.
Firearm, Automatic L. Schmeisser
Floor construction E. F. Crane
Fluid-pressure motor, Rotary W. F. Sullivan et al.
Flush tank for water closets D. Cabral
Flying machine H. R. Coffman
Flying machine M. A. Batson
Forge for drill-steel, Oil W. W. Case, Jr.
Four-wheel drive S. E. Bruner et al.
Frames, Adjustable device for uniting L. E. Gibson
Fruit picker M. I. Randall
Fruit press J. Smith
Fumes or smoke, Means for controlling G. E. Waggoner
Furnace A. O. Gutsch
Fuse E. Roberts
Fuse for a projectile H. B. Strange
Gauge-glass fixture T. C. Salter
Game apparatus F. K. Atkins
Garment stretcher E. S. Duncan
Garment supporter R. T. Clarke
Gas analyzer, Automatic P. R. Boulton
Gas-analyzing apparatus J. W. Hays
Gas burner L. C. Hiller et al.
Gas burner, Safety C. G. Farez
Gas engine, Rotary W. F. Stern
Gas-lighting, Method of and means for manufacturing mantles for incandescent I. Werber
Gas meters and the like, Protective device for H. Kaufman
Gas producer W. O. Amsler
Gate W. H. and C. E. Gee
Gate C. E. Anderson
Gear, Variable-speed J. J. Myers
Gearing, Alternating rotary A. S. Lemay
Gearing, Variable-speed-transmission A. H. Cooke
Geographical-position indicator W. G. Clark
Glass-cleaning liquid H. Schroer
Gold-extracting machine C. R. Denuison
Grain drill, Double-disk W. Elliott et al.
Gravity carrier W. S. McCurdy
Grinder, Rotary knife N. Du Brul
Grinding machine P. H. Root
Grinding machine G. and J. Holland-Letz
Guano distributor H. R. A. King
Gun, Automatic A. T. Dawson et al.
Hair comb G. C. Fricke
Hair curler A. A. West et al.
Hair cutter and safety razor, Convertible A. T. Hauser
Halter and yoke, Combined J. D. Babb
Hammer construction H. E. Derbyshire
Hammer, Power-driven A. A. Goubert
Handle for spades, shovels, forks, and like implements S. R. Park
Harrow H. C. Copenhagen
Harrow tooth, Spring E. T. Collings
Harvester and seeder, Broom-corn H. S. Thomas
Harvesting machine, Corn W. S. Baird
Hat-lining, Removable sautary E. V. Houghton
Hats, Ornament holder for A. P. Bennett
Haulage clip J. W. Smallman
Hay rake and side loader J. A. Emehiser
Headlight for automobiles, Controllable F. G. Anspach
Heat-distributing apparatus L. A. Williams
Heater F. D. Schneider
Heating apparatus (2 pats.) N. B. Wales
Heating unit F. M. Vogel
Heel-pricking machine J. E. Glidden
Heel top lift A. Leudgren
Hinge W. Yates
Hinge C. T. J. Giles
Hinge gage E. T. Bailey
Holdback M. J. Woodward
Holder F. D. Culver
Horn, Electric R. R. Root
Horse overshoe, Antislipping P. Struck
Horse-power recorder C. N. Petesch
Horseshoe, Auxiliary V. Kolakowski
Horseshoeing rack P. Huffman
Hose coupling O. Hesse
Hub, Wheel F. Gambardini
Hydrant for sheet-metal pipes, Swiveled-irrigating F. Hudson
Hydrocarbon burner H. Daley
Hydrocarbon burner J. M. McMurtrie et al.
Hydrogenizing organic compounds H. Thron
Ice-cream-freezer-frame lock J. S. Parrish
Ice-making apparatus W. McCormick
Ice-making machine T. H. Ray
Ice-shaving machine F. H. Lippincott
Index, Account W. E. Roach
Index cards, Tab for J. F. Dunleavy
Induction motor (Reissue) K. A. Pauly
Infant's band G. F. Earnshaw
Insole making A. C. Oppenheimer
Instep support W. F. Connell
Insulator, High-potential E. M. Hewlett
Interlocking block H. M. Francis
Internal-combustion engine J. Willoughby
Internal-combustion engine H. L. Brownback
Internal-combustion engine C. H. Fox
Internal-combustion motor J. F. Cullen
Irrigation system W. G. Bloss
Irrigator and sprinkler A. E. Richardson
Jar closure U. Magni
Key-socket attachment E. N. Miner
Knitting-machine needle G. C. Egly
Knitting machines, Vertical-stripping attachment for circular F. W. Robinson
Ladder, Step C. E. Stroud
Lamp, Acetylene-gas F. E. Baldwin
Lamp bracket M. W. Hazlett
Lamp carrier, Electric-incandescent A. F. Priboow
Lamp hanger, Incandescent R. D. H. Andersou
Lamp has been in use, Device adapted to show whether an electric incandescent S. Kleiu
Lamp, Incandescent gas L. M. Rubin
Lamp, Sealing wax E. Gosliner
Lamps, Wick-tube for alcohol C. Nelson
Lantern, Dark-room G. M. Fiedler
Lasting machine E. I. La Chappell
Latch, Shutter-hinge J. B. Wright et al.
Lath bolter M. L. Peterman
Lath, Metal W. M. Goldsmith
Latrine-seat shield S. A. Holmes
Leaching sacchariferous vegetables, Apparatus for M. Paschen
Lead-copper composition E. D. Gleason
Lead-copper compositions, Making E. D. Gleason
Lead-copper-tin composition E. D. Gleason
Lead-copper-tin compositions, Making E. D. Gleason
Leather-working machine A. Hodges et al.
Life belt T. B. Butters
Life-saving garment and belt J. and A. Berman
Line-casting machine M. W. Morehouse
Line-casting machine J. R. Rogers
Liquid cooler J. Plony
Liquid-dispensing apparatus H. H. Choate
Liquid-treating apparatus H. H. Suro
Liquids, Apparatus for separating deposited matter from B. Kaibel
Lock switch W. Price et al.
Locker, Coin-controlled O. Mayer
Locking ring W. L. Kelley
Locomotive, Geared S. M. Vauclair et al.
Locomotive-grate shaker F. W. Marlin
Locomotive with independently-hung axis, Geared W. A. Austin et al.
Loom heddle frame J. Kaufmann
Loom-shedding mechanism E. H. Ryon
Loom shuttle-box-selecting mechanism W. A. Clark
Loom shuttle guard T. O. Pope
Looms, Beam lock for C. E. Bailey
Looms, Machine for selecting, spooling, shearing and drawing in yarn for Axminster (Reissue) T. P. Walsh
Lug, Traction J. G. Brown
Mail-bag-delivering apparatus C. J. M. Weber
Mail-marking machine F. C. Telfield
Marker-operating mechanism J. Carney
Mask, Face H. C. Graybill et al.
Matrix-setting and type-casting machine H. Drewell
Matrix-setting and type-line-casting machine H. Degeuer
Measuring instrument, Electrical W. H. Pratt
Measuring the velocity and inclination of the wind, Apparatus for H. Gerdiou et al.
Mechanical movement M. A. Droiteour
Metallic fabric for beds or couches W. J. Grotenhuis
Metallizing ceramic and other surfaces Q. Marino
Metals, alloys, and steels, Apparatus for molten L. M. V. H. Baraduc-Mueller
Mill G. W. O. Bryan
Millinery pliers R. C. vom Cleff
Mineral separator M. L. Porter
Mining machine E. McGowan
Mining-machine bit J. J. Moore
Molding apparatus A. W. Gregg
Molding compound E. D. Gleason
Molding jacket C. O. Wood
Molding machine J. Gow
Molding metal in indeterminate lengths, Machine for G. W. Dennis
Mop J. F. Welch
Motor control W. P. Jackson
Motor-control system W. C. Yates
Motor-control system C. Kramer
Motor-control system E. J. Murphy et al.
Motor-control system F. E. Case
Motor, Convertible cycle L. S. Nash
Motor-starting device, Electric P. Dunning
Motors and similar devices, Controller for electric H. W. Leonard
Motors and similar devices, Controller for electric H. W. Leonard
Motors and similar devices, Controller for electric H. W. Leonard
Mower cutter bars, Lifting device of L. M. Jones et al.
Mowers, Rake attachment for C. H. Dove
Musical instruments, Hammer-action for S. M. Keyte
Musical instruments, Wind device for automatic E. J. Luster
Net holder, Collapsible landing H. Levy
Netting, Textile fiber H. B. and I. F. Gregory
Nose guard for cattle G. W. Benage
Nostril expander H. R. Woodward
Number, House J. W. Carlson
Nut lock A. E. Arnold
Nut lock L. S. Brach
Nut lock B. Lackey
Nut lock W. S. Old
Nut lock A. P. Stark
Nut lock A. Orzechowski
Nut, Lock H. D. Church
Nut-tapping machine E. H. Chapman
Oil burner R. L. Dailey
Ointment containing colloidal compounds C. Paal et al.
Oscillations by shock excitation, Means for producing slightly damped A. Meissner
Packer J. B. Cornwall
Packing case, Wooden B. Justen
Packing or shipping box J. H. Mills
Packing pulverulent, granular, and other substances A. A. Kelly
Pad G. S. MacMillan
Paper-delivery mechanism M. A. Droiteour
Paper feeder M. A. Droiteour
Paper-pulp-bleaching apparatus E. D. Jefferson
Pasteurizing F. Gettelman
Pencil sharpener G. K. H. Klose
Pencil sharpener J. J. Wolf
Penholder M. E. Farris
Phonograph sound-modifying reproducer C. G. Carlson
Photographic objective C. C. Minor
Photographic sheets, Machine for washing and drying C. J. Everett et al.
Piano fall board, Upright C. Mehlin
Pianos and the like, Automatic pedal folder for player F. C. White
Pianos, Sostenuto device for E. Peterson
Picture frame (2 pats.) J. McLellan
Piers and bridges, Drift-wheel for G. M. D. Bell
Piling, Metallic sheet J. S. Owens
Pin G. W. Dover
Pipe coupling J. T. McCracken
Pipe hanger A. J. Loepsinger
Pipe-joint, Elbow F. A. Neven
Pipe-testing plug C. M. and C. E. Kemp
Pipe wrench W. Cameron
Pipe wrench attachment for monkey wrenches C. N. Nelk
Pipes, Device for removing obstructions from drain H. E. Asbury et al.
Plant holder A. S. Myers
Planter attachment, Corn S. E. and D. W. Fauber
Plate, Combination J. L. Sarka
Plate guard, Adjustable guide P. Riebe
Pliers, Cutting W. A. Bernard
Plow J. T. Eddings
Plow and traction engine, Motor L. T. Hagan
Pneumatic spring J. Hofman
Powder case, Toilet D. A. Driscoll
Powder grain J. L. Walsh
Power-transmission mechanism A. R. Selden
Press J. J. Kinzer
Pressure controller A. C. Allen
Printing plates, Producing O. Luppe
Printing plates, Treatment of M. A. McKee
Printing press K. F. Kirkman
Printing press B. McGinty
Printing-press feed gauge S. J. Kubel
Printing-press ink fountain E. F. Holz
Printing presses or the like, Detector for G. T. Eagar
Propeller-blade-milling machine K. Ito
Pulling-over machine R. F. McFeely
Pump E. M. Metcalf
Pump, Automatic W. C. Clark
Pump, Centrifugal A. Gentil
Pump-operating mechanism P. C. Nowatske
Pump protector J. J. Deuel
Pumping apparatus C. R. Hudson
Punch press C. A. Carlson
Punching tool A. Kirk
Putlog T. H. Kingston
Rail chair W. M. Osborn
Rail fastener G. H. Stones
Rail joint R. S. Bohannon et al.
Rail joint A. B. Wert
Rail joint (Reissue) G. W. Warner
Rail joint and nut lock, Combined E. T. Wade
Railway construction A. Ostheimer
Railway rail and rail-base plate, Combined (Reissue) F. E. Abbott
Railway-rail attachment, Anticreep W. R. Thomas
Railway spike A. B. Baxter
Railway switch S. C. Perry
Railway tie J. K. Grant
Railway tie, Metal C. Van Deusen
Railway-tie plate J. W. Kendrick
Railway-track device E. Laas et al.
Railway-traffic-controlling devices, System for electrically controlling and operating H. B. Taylor
Ram, Hydraulic S. M. Stevens
Range transmitter J. L. Hall
Razor and guard therefor A. Oberheim
Reamer, Adjustable R. L. Ellery
Receptacle with metal label J. F. Craven
Reel L. B. Dutcher
Refractory conductors, Production of W. D. Coolidge
Refractory material, Production of articles from O. Greiner
Refrigerator, Water-cooling R. R. Ritchey
Rein guard L. B. Avery
Resilient wheel M. B. Ray et al.
Resilient wheel G. A. Leitzman
Reversible table L. E. Binsfeld
Reversing machine, Automatic T. H. Phillips, Jr.
Reversing mechanism F. Gatta
Rice-hulling machine R. W. Welch
Rock drill C. A. Hultquist
Rock drill, Pneumatic feed and return E. R. Ray
Rock drills, Valve motion for L. C. Bayles
Roller, Adjustably-mounted swivel T. W. Doolittle et al.
Rotary engine W. F. Doner
Sad iron, Electrically-heated C. A. Shaler
Safety pin M. L. Mirault
Sample case C. G. Duffy
Sash lock, Automatic burglar-proof E. L. Sloan
Sash lock, Window G. C. Miller
Sash weight M. D. Bingham
Sashes, shutters, and like movable parts, Actuating device for window W. H. Symonds
Saw and the like, Rotary cutting-off G. Gorton
Saw holder S. H. Brundige
Saw swage E. H. Wolfe
Scale S. E. Eklund
Scale, Coin-operated weighing C. A. Fey
Scale, Computing J. Hopkinson
Scissors, Buttonhole F. Karsitz
Screen T. E. McWilliams
Screw-operating mechanism L. J. Fanning
Seal, Car F. E. Brown
Seed linter, Cotton H. E. Sessions
Settling tank F. G. Sargent
Sewing machine F. W. Merrick
Shade holder R. S. Aspenwall
Sharpener, Knife J. H. Abbott
Sharpener, Razor S. Honig
Sheaf loader A. McLeod
Sheave block, Double G. W. Floyd
Sheet-delivery feed I. J. and G. S. Witham, Sr.
Sheet feeders, Trip mechanism for R. B. McLaughlin
Shock absorber C. Yeager
Sign H. Everett
Sign, Changeable advertising J. H. La Pearl
Sign, Electric A. Hoell
Sign, Revolving C. A. Evans
Signal light, Electric fog R. C. Douglas
Silicious material of low density W. C. Arsem
Silo reinforcement S. E. Anderson
Siphon, Intermittently-acting double J. Herzfeld
Skate clamp T. Spacie
Skimmer for making syrup O. B. Dees et al.
Skirt marker J. G. Zuber
Sleigh brake, Automatic H. M. and M. Sines
Sleigh runners for go-carts and the like E. C. Gledhill
Snap switch J. G. Peterson
Soapsuds and hot-water dispenser E. M. Burroughs
Sole bridge J. D. Manblatt
Sparg plug W. S. Witter
Spark plug H. M. Spencer
Speedometer, Magnetic J. K. Stewart
Speedometer, Marine C. H. Kenney
Sphygmomanometer P. Nicholson
Spout closure for receptacles A. H. Curtiss
Spring trap A. R. Mebane
Spring wheel P. M. Kling
Spring wheel A. D. Seibert et al.
Springs, Tool for handling compressed coiled J. F. Haussmann
Sprinkler attachment W. B. Hammond
Stackers, Hay retainer for L. Eckert
Stamp affixer C. J. Fancher
Stamp and coin envelope D. C. Zivley
Stamps, Manufacture of L. Nedomansky
Stanchion G. Tarcea
Steering gear, Gyroscope P. Hennig
Step, Sliding extensible L. F. Saunders
Stocking F. W. Robinson
Stoker P. L. Crowe
Stoker, Mechanical W. P. Starkey
Stove and furnace lighter J. Edman
Sucker rod and the like J. Hahn
Superheater for locomotive and other smoke-tube boilers, Steam E. S. Luard
Superheater for locomotive, marine and other boilers, Steam E. S. Suard
Supports, Positioning means for adjustable P. A. Solem
Surgical appliance N. E. Mighell
Suspenders H. C. Weber
Swimming suit D. Dyrenforth (now by marriage D. D. Auracher)
Switch key, Luminous M. T. Rosenheim
Switching mechanism, Quick-break H. G. Wellman
Tack and staple, Combined G. B. Hart
Tapping machine C. E. Neilsen
Tapping device, Liquid B. Schmeizer
Tea and other infusions, Apparatus for making G. E. Savage
Telegraph system and alphabet, Printing D. S. Hulfish et al.
Telephone booths and the like, Warning device for A. E. Ayer
Telephone transmitter H. E. Shreeve
Telephones, Switchboard circuits and apparatus for H. J. Roberts
Tie strap J. Roop

- Tin can J. W. Nichols
Tire G. Anger
Tire W. Maginnis
Tire, Automobile A. B. Hollenbeck
Tire for trucks, Resilient D. H. Deery
Tire protector R. V. Hastings
Tire protector V. K. Sturges
Tire, Resilient D. A. York
Tire shield, Pneumatic J. E. Fawcett
Tire, Vehicle B. C. Seaton
Tobacco box W. Parker
Tobacco-supporting lath D. Eagleson
Toothpick-holder, Single-delivery A. B. Hughes
Torch, Blow L. J. Cloutier
Torpedo, Submarine H. W. Shonnard
Toy F. Morinaga
Train-controlling mechanism R. T. and F. T. Jones
Train-order-delivering device T. E. Dunbar
Train stop A. R. Mutton
Train-stopping means W. T. B. McDonald
Transfer terminal R. H. Rogers
Transplanter E. E. Engleman
Trap J. G. Stoll
Tray, Filing C. E. Wilson
Trolley-pole retriever C. B. Rodgers et al.
Truck, Auto dumping E. H. Vincent
Truck, Railway station J. A. Murphey
Trunk strap F. C. Isitt
Tube expander J. P. Kerrigan
Tube-making machine A. B. Starr
Tungsten, Treating C. T. Fuller
Tungsten, Working C. T. Fuller
Turbine, Axial-flow steam C. B. Rearick
Twine holder J. C. Case
Type-composing machine A. Savarese
Type-setting and type-distributing machine A. Smith
Typewriter W. J. Kauffman
Typewriter M. C. Crawley
Typewriter F. C. Clark
Typewriting and computing machine, Combined G. O. Degener et al.
Typewriting machine H. H. Steele
Typewriting machine J. A. Rouchetti
Typographical machine N. Dodge
Typographical machine S. D. Handlin
Typographical machine D. S. Kennedy
Vacuum cleaner J. W. Fulper
Vacuum cleaner E. L. Abrames et al.
Valve, Automatic E. V. Anderson
Valve, Check H. W. Massey
Valve control, Engine I. Baker
Valve, Cushion E. V. Anderson
Valve, Flush A. N. Pasmann
Valve for controlling compressed air A. J. Gates
Valve for flush tanks E. L. Delany
Valve for internal-combustion engines, Starting H. T. Bruns
Valve for radiators and the like, Diaphragm exhaust J. McAlear
Valve gear for steam engines R. Wetherill
Valve, Internal-combustion-engine C. E. Swenson
Valve mechanism for locomotive engines, Drifting W. H. Foster
Valve-reversing gear, Steam-engine H. R. Stafford et al.
Vehicle brake S. R. O'Brien
Vehicle drive-wheel mounting J. S. Booth
Vehicle, Self-propelled C. W. Coleman
Vehicle support L. Wand
Vehicle wheel J. Bray
Vehicle wheel A. R. Burkett
Vehicles, Means for issuing directions concerning care of motor G. S. Van Voorhis
Ventilator F. A. McLane et al.
Vise, Jeweler's E. C. Wilcoxson et al.
Voltage regulator W. S. Bralley
Waistband, Tubular A. E. Allum
Washing machine D. E. G. Clarke
Washing machine H. F. Kuhlmann
Water heater J. Antonuccio
Water heater J. F. Jones
Water heater S. Soeda
Water heater J. E. Gillespie
Water heating and measuring apparatus E. G. Jay, Jr.
Water-supply system T. F. Hornung
Water-trap for carbide light systems J. B. McDewitt
Water-treating apparatus E. Hixon et al.
Water wheel, Current T. Symmonds
Wave motor R. A. Bemis
Welding, Method of and apparatus for electric E. A. Faller
Well-drilling gear S. J. Matthews
Wells, Top packer for oil or gas J. C. Stinson
Winding machines, Automatic brake mechanism for spool A. Sundh
Window O. M. Edwards
Window cleaner W. H. Ford
Window-cleaning device H. F. Stubenrauch
Window lock C. F. Hanington
Window-operating mechanism H. L. Eichhorn
Window screen P. A. Roselle
Window weight, Interchangeable J. Atlas
Windows, Rain shield for C. E. Martin
Wire, Terminal for metal-sheathed C. N. Moore
Wood and product of such process, Process of treating and coloring L. S. Bache
Wrench G. A. Rienks
Wrench H. H. Hayward
Wrench S. Moss
Wrench F. C. Wutke
Yoke, Neck E. A. and J. Schrueth
Aeroplane-controlling apparatus J. A. Moore
Aeroplanes or flying machines, Bomb for use in connection with H. S. Maxim
Air compressor (Reissue) L. G. Stone
Airship C. E. Myers
Alkali salts of the 3.31-diamino-4.41-dioxy-arsenobenzene and making same, Preparation from P. Ehrlich et al.
Alkalis from silicate rocks, Recovering (2 pats.) S. Gelleri
Aluminium nitride, Manufacture of O. Serpek
Anchoring device C. Ilamann
Animal overshoe Q. Zuber
Animal trap F. M. Nolder
Anticrepper E. M. Smith
Antiskidding device T. B. Thomas
Automobile control mechanism H. Ford
Automobile lock W. G. McNab et al.
Automobile seat construction F. J. Morgan
Automobile wind shield A. U. Premont
Axle drive H. M. Boyd
Axle steering knuckle F. F. Marshak
Bag frame inlay J. Ritter
Bag holder O. E. Blood
Baking pastry cones, Apparatus for A. M. Carlsen
Balance E. Zimpel
Basket for bottle conveyers J. W. Dawson
Beam D. B. Luten
Bearing, Ball J. Vorraber
Bearing, Internal-grinding wheel H. T. Shearer
Bed H. B. Arnold
Bed canopy J. Conant
Bed davenport or couch S. Goldstein
Bed-rail joint E. J. Olsen
Bed spring K. Richey
Bell, Locomotive E. M. Crawford
Belt fastener W. F. Marresford
Binder C. E. Swift
Binder, Temporary J. S. Jensen
Blasting T. Johnson
Blowpipe apparatus W. C. Bucknam
Boat, Life W. J. Tekippe
Bobbin-magazine for doffers B. A. Peterson
Boiler A. M. Urista
Boiler T. M. Parker
Boiler tubes, Hardening copper P. D. Johnson
Boilers, Fire-box stay bolt for locomotive and other E. I. Dodds
Book, loose-leaf E. A. P. Wolf
Boxes, Drop-handle for S. B. Field
Bracelet T. W. Foster
Brake H. C. Marmon
Brake-actuating mechanism T. N. Nygren
Brake-release device, Speed-controlled W. V. Turner
Brake shoe (3 pats.) W. C. Fisher
Brake-valve device W. V. Turner et al.
Brake-valve device, Automatic W. V. Turner
Breathing appliance W. Longway
Briquets, Making O. Kippe
Brooder J. A. Gardner
Brooder J. W. Morris
Brush G. L. Rogers
Bucket, Self-cleaning drag scraper M. H. Morse
Buffing machine E. E. Lane
Burglar alarm O. Wiggers
Burglar alarm E. Ogle
Burner J. T. Underwood
Button-holding device W. F. Gaunt
Cable cutter J. E. Gilchrist
Calk-forming machine, Heel M. L. Gardner
Can-opening device, Sheet-metal P. Scholz
Can-perforating attachment G. Buttress
Candy-packing machine E. A. Wasserman
Car coupling H. T. Krakau
Car-coupling knuckle B. F. Haugh
Car-coupling knuckles, Casting B. F. Haugh
Car couplings, Casting knuckles for B. F. Hough
Car-door-operating device V. M. Summa
Car-end construction, Railway V. M. Summa
Car, Hopper-bottom dump H. Zahl
Car protective device, Street E. E. F. Creighton
Car, Railway O. Sigismund
Car, Railway H. Pearson
Car, Railway (Reissue) E. W. Summers
Car, Railway scoop L. E. Johnson
Car window L. C. Sparks et al.
Cars, Device for braking railway J. W. Bodie
Carburetor J. Schreiber
Carburetor W. A. Cahill
Carburetor P. P. L. Jaugey
Carburetor (3 pats.) W. W. Muir
Carbureting device J. J. Hawthurst et al.
Card-cutting, counting, and packaging machine, Automatic J. W. Kane et al.
Carry iron (2 pats.) P. Bateman
Cartridge carrier P. D. McClintock
Case-making machine W. S. Vetter
Case end frame G. W. Scott
Casting, Hood panel A. W. L. Hartbauer
Catalytic material, Making C. Ellis
Cement pole, Reinforced W. S. Morris
Chain, Bead W. J. Gagnon
Change-giving apparatus, Subtracting device for S. Chiger
Change-giving apparatus, Device for coupling the coin ejectors in S. Chiger
Chase lock A. H. Wadewitz
Chase lock, Platen-press A. S. Foreman
Cigarette-making machine C. de Cazen
Clamp (Reissue) M. S. Robinson
Clamping device F. K. Shaffer
Clamping device J. W. Reese
Clamping device R. A. Beaudette
Clock, Electric H. Gillette
Clock-winding device C. T. Bernhardt
Cloth-laying machine S. Moritz
Cloth, paper, or other material, Machine for feeding and cutting J. Keagy
Clothes pounder B. H. Wilson
Cock, Water gauge D. Davies
Coffee urn J. N. Shaw
Coin-actuated mechanism (2 pats.) E. Richter
Coin-packaging device P. E. Bisland
Collar, Horse W. P. Gelabert
Combustion apparatus and gas producer G. H. Niles
Concrete building, Reinforced W. P. Cowles
Concrete molds or forms, Tie for O. Stange
Concrete pile T. W. Ridley
Concrete reinforcement D. B. Luten
Conduit box, Electric H. J. White
Conveyer for driers T. Allsop
Cop tubes, bobbins, spools or the like S. W. Wardwell et al.
Holder for A. H. Lewis
Core bar, Collapsible R. O. Stutsman
Corset, Apparel D. Kops
Cotton-picking machine (2 pats.) J. F. Appleby
Crusher E. Friedrich
Currycomb, Self-cleaning J. J. Minich
Cycle engine support, Motor E. C. Pfeider
Cycle, Motor J. C. Chapin
Damper, Fireplace P. A. Delsing
Davit P. Lagayaz Az
Dental cotton holder S. L. Whitright
Die J. H. Matthews
Digging or excavating apparatus J. E. Wyckoff
Dipper, Cream G. W. Splaine
Directory and score board A. Spielmann
Display case H. N. Lines
Display rack, Folding floral J. A. Buchner
Ditches, Stop for J. H. Patrick
Door fastener S. Northey
Door-operating device D. S. Barrows
Door, Screen M. Bowers
Draft equalizer E. R. Spellman
Drafting table C. W. Purkey
Drawbridge B. Leslie
Drawing instrument, book-mark, and paper cutter, Combined H. Johnson
Dredger, Vacuum L. B. Gray
Dress shield L. L. Just
Drill-making-machine die J. G. Leyner
Drill rig L. W. Appelman
Driving mechanism A. W. Altorfer
Drug mill E. H. Hance
Drying apparatus, Cellular A. Buttner
Dye for cotton, Diazotizable disazo (2 pats.) W. Herzberg et al.
Dye for the anthraquinone series, Blue W. Herzberg et al.
Dynamo brush holder C. H. Smoot
Dynamos, Interrupter for ignition H. H. Wixon
Egg cases, Cellular member for C. W. Wise
Electric contact and indicator R. T. Smith
Electric dispatch system, Automatic J. Deschamps
Electric generating system H. H. Wait
Electric horn C. F. Townsman
Electric meter J. Mayer
Electric rivet furnace W. S. Johnson et al.
Electric switch E. A. Halbleib
Electric switch C. E. Avery
Electrodes, Holder for high-tension A. R. Darling
Embroidery hoop R. H. Keagy
Emergency brake, High-pressure W. V. Turner
Emery wheels, &c., Device for cleaning and truing F. M. Courser
Engine reversing gear, Multiple-expansion-steam J. G. Maxwell
Engine starter, Gas C. H. Cuno
Engine-starting device, Explosive R. E. Hammond et al.
Engine-starting device, Internal-combustion B. I. Lamb
Envelopes, Machine for applying patches and fasteners to M. Viereugel
Excavator buckets or shovels, Tooth for M. J. Wozniak
Farm gate R. E. Porter
Faucet W. Cacko
Faucet E. W. Vickrey
Faucet attachment J. Regar
Faucet, Water cooler W. E. Patnaude
Feed trough for poultry R. C. Sutton
Feed-water heater D. T. Williams
Feeder, Poultry M. H. Hinkle
Fence clamp, Wire C. J. Livering
File, Bill W. Molenaar
Filing cabinet, Metallic A. W. L. Hartbauer et al.
Filter P. E. Malmstrom
Filter, Tap W. J. O'Connor
Fire alarm, Thermostatic J. Rancourt
Fire door for elevator shafts, &c. M. Gilmore
Fire-door safety device T. H. Lawrence
Fire-extinguishing apparatus, Automatic L. Van Auker
Fire-extinguishing fluid J. W. Aylsworth
Firearm, Recoil-operated J. A. Taylor
Fireproof safe for cabinets J. Booth
Fireproof stair D. A. Anderson
Fireproof wall W. Geraerds et al.
Fishing-rod tip end or top C. C. Meyer
Fluid-pressure-brake device W. V. Turner
Fluid-pressure-brake device for double-heading W. V. Turner
Fly net for horses W. E. Wahra
Fly trap C. W. Reynolds
Flying-machine bomb H. S. Maxim
Foot attachment W. C. McKinney
Forge, Oil-burning J. G. Leyner
Foundry riddle E. W. Beach
Fruit and flower cutter (Reissue) C. F. Billau
Fruit drier G. T. Stamm
Furnace in which industrial residues are burnt L. Felizat
Furniture and the like, Fastening for knock-down F. E. Cartier
Furniture packing pad C. A. Wakeman
Fuse plug H. T. Paiste
Fuse plug G. B. Thomas
Game, Card J. P. Beavens
Gas burner C. B. McElwaine
Gas engine L. Illmer, Jr.
Gas generator, Acetylene W. Hayne
Gas mixer and regulator W. S. Jones
Gas-producer stirrer J. A. Herrick
Gas producers, Apparatus for regulating the supply of steam to C. H. T. Alston et al.
Gas producers working with high-pressure blast, Water seal for A. von Kerpely
Gas, Producing J. J. and F. C. Nix
Gas-supplying-apparatus safety device G. F. Picot
Gases, Treating coal C. G. T. ...
Gasolene burners, Automatic regulator F. A. Johnson
Gate C. F. Safford
Gate S. A. Craig
Gate C. M. Baker
Gear, Variable speed J. Yocum
Gearing J. D. A. ...
Gearing H. A. ...
Gin-saw cleaner J. P. ...
Gliding switch for overhead monorail tramways S. H. ...
Glycerine from vinasces, Extracting G. P. Guignard et al.
Goggles N. M. Baker
Governor, Power-vehicle T. ...
Governor, Speed T. ...
Gramophones, Automatic stop mechanism for M. A. ...
Grate G. M. S. ...
Grating device A. J. C. ...
Grinder, Gear-cutter A. L. De ...
Grinder, Knife E. C. Loomis
Grinding attachment, Scissors E. C. Loomis
Grinding machine E. O. Partridge
Grinding machine U. Steiner
Grinding machine, Wood H. S. Chalfant
Grinding machines, Apparatus for applying abrasives to H. K. Hitchcock
Grinding machines, Work-rest for H. T. Shearer
Grinding mill M. E. Rozelle
Grinding of toothed wheels, milling cutters and the like A. Aichele
Grinding steel pens, Machine for C. H. Boughton
Gum, Chewing J. M. Trimble
Gun, Air A. V. Dickey
Gun sight O. Boecker
Hair-dressing device A. Masle
Hammer, Pneumatic G. L. Robertson
Harvesting machine, Beet W. Haster
Harvesting machine, Hay C. A. Sumwalt
Harvesting machines, Cutting apparatus for C. H. Kuzler
Hasp fastener D. L. Ervin
Hawk and trowel, Combined H. O. Bean
Hay presses, Automatic tier for I. E. Ward
Hay scatterer P. J. Anderson
High-speed brake W. V. Turner
Hinge F. Schrey
Hinge P. Liscike
Hinge, Concealed E. N. Baldwin, Jr.
Hog greaser, Automatic S. E. Edwards
Hog scraper A. G. Olson et al.
Hog trap, Adjustable G. M. Lowe
Hoof pad A. Larsen
Horn, Mechanical E. Aufiero
Horseshoe-manufacturing apparatus H. K. Lountzen
Hose clamp C. E. Edwards
Hose coupling S. Storm
Hose-supporter clasp L. S. Florshelm
Hydraulic transmission apparatus H. S. Hele-Shaw
Hydrocarbon burner J. W. Porter
Ice-cream-cone filler R. Nielsen
Implement handle E. L. Upson et al.
Indicator L. A. Cock
Instep-arch support M. Goodside
Insulator, Line O. C. Meusebach
Internal-combustion engine J. J. McLean
Internal-combustion engine A. V. Waldo
Invalid elevator H. Foss
Ironing apparatus, Garment H. B. Ferguson
Ironing machine F. E. Warner
Kaleidoscope T. G. Stough
Kiln A. C. Diller
Kilns and separating dust from the waste gases of such kilns, Process of and apparatus for producing draft in cement R. C. Carpenter et al.
Knife-switch blade A. K. Sutherland
Knockdown package G. S. Bowman
Lace-hook-setting machines, Feed mechanism for A. R. Havener
Ladder O. Siegel
Ladder, Combination step A. O. Tannenberg
Lamp H. R. Van Vleck
Lamp, Candle (2 pats.) P. Hauser et al.
Lamp lock, Vehicle and other F. W. Seabrook
Lamp-operating mechanism L. J. Wogenstahl
Lamp, Portable electric reading S. J. Levi et al.
Lamp, Protecting J. H. Bobnett
Lamp socket, Electric G. C. Knauff
Last, Shoe J. S. Bucky, Sr.
Lathe work holder A. G. Brunton
Lavatory, Folding G. E. Seymour
Lawn-sprinkling device J. S. Hadden
Lawn-sprinkling device J. S. Hadden
Lead-refining apparatus J. F. Beattie
Letter case, Metallic A. W. L. Hartbauer et al.
Life raft C. W. Cook
Lifting jack E. R. Penrose
Lighting device G. C. Gooder
Lighting fixture W. P. Horn
Lighting fixture F. M. Egan
Line-setting and casting machine J. Dorneth
Link-mesh machine (2 pats.) H. W. and C. G. Smith
Linotype machines, Space band for T. H. Knapp
Liquid-dispensing device H. R. Zeamans
Lock I. S. Goldman
Lock A. S. Franks
Loom stop-motion W. H. Baker
Loom thread parter J. Northrop
Lubricating apparatus C. S. Bavier
Lubricating device H. Martin
Lubricator W. J. Faul
Mail-marking machine F. C. Telfield
Manganese from its ores, Extracting F. Heusler
Matrix-forming machine S. G. Goss
Mats, Making dish E. R. Bartholomew
Measuring cabinet F. P. Rees
Measuring wheel F. W. Rapson
Metal, Composite T. S. Fuller
Metal tie and rail fastener A. Zimmerman
Metallic wheel S. H. Summerscales
Meter H. Chrisman
Mine-shot-firing system G. I. Rawson
Mine shovel J. C. Cartmill

Issued November 11, 1913.

MECHANICAL PATENTS.

- Adding and recording machine H. Landsiedel
Adding machine H. Landsiedel
Adding machine, Pocket P. E. Saehrendt
Advertising device, Gas-flash-light T. Jackson
Aeroplanes and other flying machines, Bomb for use with (2 pats.) H. S. Maxim
Aeroplanes, Means for improving the stability of H. S. Wildeblood

Mining machines, Cutting bit for chains of
Mold former C. N. Barton
Monochlorhydrocarbons, Acetylation of...
Motive power, Supplemental control for...
Motor C. A. Willard
Motor-control system, Repulsion..... J. Vinson
Motor or engine C. B. Hoffmann
Motors or generators, Brush holder for
electric E. A. Halbleib
Mud guard C. H. Nichols
Muffler and oil-gas producer, Combined...
Musical instruments, Pneumatic electric
tracker bar for..... C. W. Dorricott
Nail-making and driving machine
Nitrogen from the atmosphere, Apparatus
for obtaining..... O. Frank et al.
Non-conducting material and making same
Oil burner F. L. Weeman
Oil mixtures and the like, Hydrogenating...
Ore separator C. Ellis
Ores, Treating E. Langsthorp
Organ stop action, Combination (2 pats.)
Oven, Baking J. T. Austin
Overshoes and rubbers, Retainer for.....
Oxygen and hydrogen, Electrolytic device
for generating (Reissue)..... R. Moritz
Package J. F. Dixon
Packing A. L. Cole
Pail, Shower bath..... R. E. Jones
Paper-making machine G. D. Kilberry
Partition construction, Means for support-
ing plaster-boards in..... M. H. Jester
Pattern for drafting and fitting garments...
Pattern for drafting garments L. S. d'Orsogna et al.
Peanut stemmer T. M. Lilliston
Pen and pencil holder..... F. W. Schneeman
Pen, Fountain G. S. Parker
Permutation lock..... B. H. Ziebler
Phonograph P. Catucci
Phonograph records, Making..... T. A. Edison
Phonographic recording or reproducing ap-
paratus T. A. Edison
Photographic exposure meter..... P. Boucher
Piano pedal S. W. Widney
Pick D. D. Keltner
Pilot, Adjustable J. M. Sledge
Pipe cleaner J. D. Carey et al.
Pipe connections, Joint for train
Pipe coupling J. A. Corrigan et al.
Pipe wrench J. H. Taylor
Planter G. M. Gealy
Planter, Corn and pea..... A. W. Assmussen
Planter, Two-row cotton and corn.....
Plaster work, Carrier for..... O. Reznitz
Playhouse, Child's L. T. Yoder
Plow-adjusting mechanism..... H. A. Hunteon
Pneumatic agitator and cleaner..... A. W. Mills
Pneumatic cleaning machine..... M. S. Wright
Pneumatic governor B. S. Aikman
Pneumatic motor T. A. Delaney
Pontianak compound and preparing same
Potato digger G. Staunton
Potato dropper T. E. Hale
Potential regulator C. J. Priset
Power-press safety guard (Reissue).....
Printing-machine-feeding device..... J. Wright
Printing machine, Rotary intaglio..... W. Hay
Printing machine, Sheet-delivery mechan-
ism (2 pats.) D. J. and W. C. Scott
Printing press, Rotary (Reissue).....
Propeller H. F. Bechman
Propeller, Screw A. E. Mueller
Propellers, Hydraulic controlling means
for A. P. Filippi
Pulley block W. L. Gile
Pulley, Speed-governing..... G. Frink
Pump F. E. Parker
Pump, Air lift..... J. M. Stratton
Pump and motor..... T. Peters
Pump for internal-combustion engines, Fuel
Pump for vacuum cleaners..... K. J. E. Hesselman
Pump, Mine I. Barker
Pump working barrel L. Chadwick
Putty-dispensing device..... J. Kilburn
Radiator M. I. Jacobs
Rail chair D. J. McCarty et al.
Rail fastening..... G. W. Roemer et al.
Rail joint F. K. Goodrich et al.
Rail joint E. E. Slick
Rail joint C. H. Brunner
Rail joint P. T. Fiehler
Rail tie J. D. Warrell
Railway appliance W. R. Isaacs
Railway crossing C. F. Kelly
Railway grade-crossing, Automatic
Railway grade-crossings, Steam or electri-
cal F. K. Dekan et al.
Railway signal M. E. Harrison et al.
Railway spike..... J. P. Coleman
Railway tie G. M. Brox et al.
Railway tie C. Allerton
Railway ties, Device for removing and re-
placing W. S. A. Wilder
Rake T. and E. G. Whitted
Receptacles, Machine for introducing
charges of material into..... L. Fischer
Recording mechanism..... R. Frick
Refractory material F. J. Tone
Refuse burner W. McCause
Register W. C. Pritchard
Relay for two-wire notching systems.....
Relay, Harmonic E. R. Carichoff
Relay, Harmonic K. B. Miller
Replanting machine, Corn..... J. J. Cholic
Resilient wheel H. Kirkby
Resilient wheel for motor cars and the
like J. E. Graham et al.
Rim, Demountable J. M. Gilbert

Road roller..... R. E. B. Crompton et al.
Rolling ingots J. E. York
Rolling mill G. H. Barbour
Rolling mills, Automatic guide box for
iron and steel D. M. Griffiths
Rope laying machine (2 pats.)..... W. L. Toby
Rotary engine J. Shaw
Rotary engine T. W. Moore
Rotary engine R. J. Davidson
Rotary motor T. Ruhlmann
Rubber, Devulcanizing..... D. A. Cutler
Rubber tubes, Machine for forming.....
Rubber tubing, Apparatus and method for
splicing F. W. Kremer
Sand, Treatment or renovation of foundry
Sash and ventilator, Combination storm...
Sash holder H. C. Markowski et al.
Saw and the like, Rotary cutting-off.....
Saw handle G. Gorton
Saw-setting machine H. B. Garman
Scale (2 pats.) F. Galpin
Screen-supporting frame, Foldable
Seal, Car-door..... J. B. Lynch
Seal, Car-door..... J. W. Rumsey et al.
Sectional mold, Adjustable..... E. R. Burns
Seines, Guiding attachment for..... F. W. Bull
Shade and curtain hanger..... N. Vukasovitch
Shade guides, Sanitary holder for..... J. N. Parrahm
Shade roller, Self-adjusting..... G. L. and F. L. Grier
Sharpening machine, Drill..... A. Rose
Sheaf loader J. G. Leyner
Sheet delivery and stacker..... H. H. Davison
Sheet-delivery apparatus G. Ackerman
Sheet-metal wheel C. Henderson
Ships' bulkheads, Door for..... F. B. Horn et al.
Shock absorber W. Houghton
Shock absorber E. W. Newman
Shoe A. Camporini
Shoe form D. Austin
Shoe-forming device..... C. S. Pierce
Shoe-polishing device..... T. A. and L. T. Smith
Shuttle J. A. Burns
Sickle with saw attachment..... E. H. Daudelin
Signaling and controlling device, Alarm..... I. T. Le Baron
Signaling system E. H. Bock
Slide gate H. G. Webster
Slitting and folding machine..... R. C. Force et al.
Solder for aluminium H. W. Hanan et al.
Sole plate and railway tie, Combination...
Sound box C. Willmott
Spike-pulling jack..... G. H. J. Maas
Spooler T. A. Edison
Spools, Means for securing heads to..... H. E. Wadsworth
Spring-adjusting mechanism..... H. D. Colman
Spring wheel W. Cronin
Sprinkler F. Dorsey
Sprinkler H. O. Knight
Stair, Counterbalanced..... J. S. Hadden et al.
Stamping presses and the like, Safety
mechanism for..... O. C. Fosselman
Stay A. F. Wallbillich
Steam boiler J. D. Miller
Steam boiler A. Catchpole
Steam boiler E. W. Pratt
Steam-generating apparatus..... G. Marshall
Steam trap E. F. Jones
Steel and other wire or metal, Apparatus
for coiling S. C. Caddy
Steel shapes, Altering elongated..... J. E. York
Steering gear H. Parkhurst
Stitching machines, Feeding mechanism for
wire H. Weber
Stone or like composition, Artificial..... J. S. Kruse
Stove W. E. Shore
Strainer J. H. Pittsman
Street cleaner L. A. Hervey
Stretching a resonant plate over a frame,
Means for F. Frankel
Swage shaper J. F. Pribnow
Switch W. W. Groff
Switch-box lock F. M. E. Locher
Tabulating mechanism..... F. M. E. Locher
Tachometer, Electromagnetic..... H. Landsiedel
Tackle block N. M. Hopkins
Target-practice apparatus..... J. T. McMillan
Telegraph and telephone wires, Support for
Telegraph system, Multiplex..... H. L. Hoybook
Telephone bracket J. F. D. Hoge
Telephone-instrument attachment..... F. Fox
Tension device W. Wood
Tension device C. Suss
Therapeutic apparatus..... W. Marcroft
Time recorder A. Fumo
Time recorder C. E. Tomlinson
Time-recording machine..... H. W. Brown
Timing device C. E. Tomlinson
Tire alarm, Pneumatic..... C. R. Moore
Tire, Antiskid J. B. Polo
Tire-bolting machine F. W. Kremer
Tire-bolting machine M. T. Long
Tire-bolting machine G. W. Bonham
Tire tread J. F. Le Baron
Tires, Inner tubes for pneumatic..... A. and A. Raymond
Tobacco scrap, Treating..... A. and A. Raymond
Toilet implement C. F. Gloystein
Tool, Percussive E. O. Hilfiker
Torch, Welding W. Clement
Towel retainer J. C. Gehring, Jr., et al.
Tractor T. Heins et al.
Transformer, Oil-cooled C. M. Manly
Trap for rats, gophers and similar small
game F. C. Green
Tree prop E. K. Van Curen
Tricycle-propelling mechanism..... W. P. Shepherd
Trolley P. A. McCarty
Trolley guard E. Reddick et al.
Truss-rod anchor P. Dragan et al.
Tubes with lead, tin, or the like, Apparatus
for lining J. M. Ames
Turnstile P. Theuerkorn
Type A. W. Irwin
Type bar W. R. Allen
Type bar W. R. Allen
Typewriter G. B. Baker
Type-writing machine G. A. Seib
Type-writing machine C. B. Corcoran
Umbrella M. Carrau

Umbrella rib and socket..... F. W. Simons
Underframe (2 pats.)..... J. M. Rohlfing
Underreamer W. W. Wilson
Underwear, Lady's..... H. G. G. Querns
Vacuum and water connections..... C. G. Patterson
Vacuum-cleaning apparatus..... C. Swann
Vacuum-cleaning device A. Best
Valve, Flushing J. L. Williams
Valve for air brakes, Triple..... S. G. Neal
Valve for locomotives, Drifting..... J. Sandy
Valve for water heaters, Gas-control.....
Valve gear H. Eisenach et al.
Valve stem and check valve..... A. E. Hall
Vehicle, Dumping C. A. Haas
Vehicle jack L. Bruder
Vehicle spring M. Stewart
Vehicle ventilator H. J. Mitchell
Vehicle wheel D. Fergusson et al.
Vehicle wheel W. A. Milam
Vehicle wheel T. Poss
Veil holder, Lady's..... J. P. Champion
Vending machine E. H. Leonard
Vending receptacle J. W. Patterson
Veneer-branding or printing press H. H. Goldstein
Ventilator frame, Adjustable..... O. C. Fenalson
Vestibule hood M. G. Bunnell
Wagon skein A. E. Ostrander
Wardrobe W. J. J. and H. B. Shelton
Warp-stop-motion attachment..... O. Herrmann
Washing machine..... G. Patterson
Water applicator, Hot and cold..... L. A. Curtis et al.
Water cooler T. Michael
Water-raising wheel W. E. McIntosh
Watering can J. O. Patnaude
Wave-motion motor S. C. Skanks
Wave motor L. A. Trull
Weather strip L. A. Trull
Weeder, Rotary F. W. Baxendale
Welding J. K. Downie
Welding of sheet metal, Electrical..... R. D. Thomson
Well-casing shoe E. Thomson
Well-drilling machine R. C. Baker
Welt for footwear E. Rand
Wheel J. G. Gerber
Whiffletree hook M. D. Price
Whiffletree hook H. C. Colglazier
Whip socket O. B. Haga
Wind wheel or propeller..... W. F. Skeen et al.
Window, Sliding W. R. Martin
Window ventilator H. Nikolaus
Wire fabric, Forming woven..... A. B. Moon
Wire-handling apparatus..... J. M. Oglesby
Wire-warpage apparatus..... M. P. Reynolds
Work support W. W. Steiner
Wrench L. C. Steele
Wrench for demountable rims and the like
Yeast, Treating A. A. Macleod
Yeast, Treating F. Mossberg
Yeast, Treating J. H. Wagenhorst
Yeast, Treating E. Jacoby

Issued November 18, 1913.

MECHANICAL PATENTS.

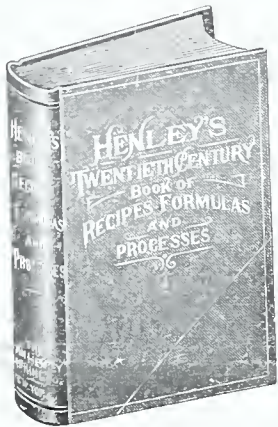
Abrasive-wheel mounting..... H. K. Spencer
Acid, Manufacture of nitroso derivatives
of phenyl-glycinortho-carboxylic..... J. Houben
Advertising device W. J. Mevis
Aerodrome R. G. Dressler
Aeronautical apparatus A. Donath
Aeroplane Brooks
Aeroplane G. E. Hanes
Aeroplanes, Automatic stabilizer for.....
Agricultural implement..... T. Windel
Agricultural implement..... J. D. Martens
Agricultural machine R. E. Davison
Air-brake-mechanism safety appliance..... J. L. O'Neill
Air-cooling apparatus..... M. W. Crandall
Apparel, Wearing W. H. Carrier
Arch supporter M. M. Dryfoos
Automatic sprinkler J. P. Thomas
Automatic sprinkler head..... S. M. Marshall
Automobile hood cornice..... E. M. Long
Automobile shock absorber..... A. E. Schaaf
Automobile top N. H. Lines
Axle C. V. Beebe
Bag-tie machine D. Ryerson
Bait, Artificial E. Truman et al.
Banana stand H. S. Welles
Band-making machine H. F. Royse
Barn O. N. Tervander
Barrel, Knockdown metal C. Dolph
Bearing, Ball H. A. House
Bearing mechanism J. Modler
Bed fabric R. S. Brown
Bed, Folding S. Rusnak
Bed, Folding (3 pats.)..... R. F. Cornell
Bed, Spring G. Fischrupp
Bed tub A. Scheible
Belt, Conveyor E. A. M. Gallagher
Belt guide W. W. Batchelor
Binder, Loose-leaf J. T. Smith
Binders, Setting-up device for document...
Boiler furnace W. R. Woodward et al.
Boiler-tube-jointing apparatus..... A. Normand
Bolting, sifting and grading machine..... S. A. Dugau
Boltwork, Safe W. Gray et al.
Boring tool C. Bartels
Bottle cap or seal..... E. E. Davis
Bottle closure or seal..... C. Hammer
Bottle-handling mechanism W. B. Thomson
Bottle-holder J. V. Irenius et al.
Bottle holder, Milk C. N. Sowden
Bottle, Non-refillable R. H. Neff
Bottling appliance J. Letora
Box or receptacle for containing small ar-
ticles J. V. Irenius
Brake-beam gauge E. P. Perkins
Brake shoe C. H. Williams, Jr.
Brake shoe and supporting means there-
for W. A. Lovelis
Branding machine J. D. Gallagher
Bridle bit H. W. Colby et al.
Brush, Laminated contact J. Beery
Buckle C. Ambruster
Burglar-proofing device, Window W. M. Ward
Burial device O. H. Sheppard

Butter, lard, and cheese cutter..... D. D. Landis
Button, Collar H. E. Lock
Button, Non-separable link cuff J. F. Keliher
Cables, Terminal connector for concentric
conductor C. H. Allen et al.
Calculating machines, Transfer mechanism
for F. Kratz et al.
Call register H. W. Clement
Camera and projecting apparatus, Kine-
matographic H. P. Clausen et al.
Cape, blanket and shelter tent, Combined...
Car, Box W. Chipperfield
Car coupling H. S. Bryan
Car coupling, Automatic air-valve..... W. E. Fowler, Sr.
Car diaphragm J. R. Deisher
Car diaphragm, Automatically-opening..... G. E. Muth
Car diaphragm, Automatically-opening..... E. E. Whitmore
Car diaphragms, Hood for W. H. Forsyth
Car-door hanger E. E. Whitmore
Car-door hasp C. W. Price
Car-fender J. T. and C. W. Kemper
Car-fender J. A. MacMahon
Car-fender W. T. Tate
Car roof V. M. Summa
Car seat F. Bennett
Car seat C. A. Van Derveer
Car seat F. Bennett
Car stake and bunk..... F. W. Chriswell
Car, Street G. Witty
Car-trap-door latch, Railway..... O. M. Edwards
Cars, Inspection device for grain..... B. F. Owens
Cars, Reversible side ballast-unloading plow
for J. Suggitt
Cars, Sill for railway..... R. W. Burnett et al.
Cars, Steel roof for freight..... W. E. Symons
Carpet beater E. L. Dennis
Carriages, Rocker for baby..... A. Raphael
Cartridge J. H. Wesson
Cash register H. S. Hallwood
Centrifugal screen and classifier C. Bartholomai
Chair C. A. Van Derveer
Chair head rest, Barbers'..... H. E. Campbell
Check, Safety J. P. Adams
Chimney E. Banzhaf
Cigar cutter and lighter, Combined.....
Clock, Alarm G. H. Schroeter
Clock, Alarm G. Kern
Clod fender, Revolving..... H. H. Munson
Clothes pounder W. MacDonald
Clothing hanger and protector, Combined...
Clutch L. C. Hill
Clutch, Combined friction and positive..... H. B. Babson
Clutch-operating mechanism..... H. Druschel
Clutch-operating mechanism..... J. J. Peter
Coal breaker W. Lloyd
Coal-drilling-machine boxing..... A. F. Deruy
Cock, Gas A. R. Pyle
Coke-drawing apparatus J. Hayes
Coke oven W. M. Person
Collar attachment C. R. Whitman
Collar attachment, Adjustable horse M. Nilsson
Collar-holding device..... W. G. Robinson
Combing machine J. Good
Compass and marking gauge, Combination
Composing machine, Typographical..... N. L. Kunkel
Computing bin..... M. Bottger
Concentrator, Multiple-deck..... D. S. Fleming et al.
Concrete-building-block construction A. E. Wiggin
Concrete construction B. Brownstein
Concrete construction, False work for..... R. W. Stentzel
Concrete culverts, Portable mold for..... C. A. Hammett
Concrete in piles formed in the ground,
Recording the volume or sectional area
of J. M. Leighton
Concrete railway tie, Reinforced..... F. A. Wilson
Conduit for irrigation I. B. Naylor
Conduit, Irrigating (2 pats.)..... I. B. Naylor
Conserves, Manufacture of meat-like.....
Container, Portable F. Smolka
Control system H. Ariens
Conveyer H. D. James
Conveyer for coal and goaf-packing in
colliery inclines of low gradient, Self-
acting J. J. Curtis
Conveyer mechanism L. Hyve
Cooking apparatus, Meat..... J. Conte
Core, Collapsible F. Briggs
Corn protector J. Yeniker
Corn rack J. E. Pulliam
Corn rack, Seed F. P. West
Corn rack, Seed A. P. Hertzgaard
Corset fastener E. Calkins
Cotton chopper H. Pruet
Cotton-cleaning and feeding machine..... C. W. Cook
Counting device, Portable automatic R. M. McCulloch
Coupling J. O. Martin
Cow-tail holder C. W. Stedner
Cradle, Blotting F. C. Benedict
Crib and intake, Combined..... W. D. Barber
Cultivator S. B. McCormick
Cultivator J. B. Bonneau, Jr.
Cultivator and harvester, Submarine..... N. A. Lybeck
Cultivator fender W. A. Thomas
Curtain rod C. V. Bond
Cuspidor, Car W. F. Pabst
Cut-out mechanism for fluid-actuated de-
vices, Automatic..... J. H. Becker
Cutter bar P. and L. Wilde
Cycles, Combined tool box and carrier for
motor and other T. Braidwood
Damper-operating device..... C. D. Paterson
Dental backings, Die for forming D. H. Carpenter
Depulping machine A. Teresa
Derrick H. E. McGinnis
Dish guard, Feed O. G. Moore
Dispeuser for liquids and other materials
Display device (2 pats.)..... F. R. Bussler
Display device for bottles and analogous
articles R. C. Beatty
Display machine W. H. Brown
Display rack, Merchandise J. Gray

- Distilling liquids and fusible solids, Apparatus for J. W. Aylsworth et al.
 Doffing mechanism S. Shackleton
 Door J. A. Giese
 Door construction for cases, Disappearing F. E. Meinel
 Door fastener, Sliding G. M. Monson
 Door lock P. F. Manning
 Double runner J. E. Chenette
 Doubletree, Adjustable C. Petersen
 Draft appliance A. Krivonyak
 Draft rigging M. A. O'Connor
 Draft rigging, Friction C. J. Nash
 Drain head J. M. Petersen
 Drill head, Multiple-spindle A. H. Reher
 Drilling holes, Apparatus for S. T. Skeen
 Drilling-machine attachment J. E. Pool
 Dye, Blue azo M. Kahn et al.
 Dyeing machine J. Hussong
 Dyestuff, Black mordant monoazo M. Kahn et al.
 Electric-circuit-controlling apparatus for train lighting and similar systems E. H. M. Langley et al.
 Electric device, Vapor F. W. Lyle
 Electric furnace A. E. Greene
 Electric generator, Dynamo G. and L. Inghr
 Electric heater W. Duhiller
 Electric-lighting fixture, Pedestal indirect F. W. Emmer
 Electric machine, Dynamo H. H. Ralston
 Electrical connection J. M. Andersen
 Electrical connector and making same O. A. Rogers
 Electrical distribution system J. L. Woodbridge
 Electrical distribution system G. Crosby
 Electrical switch W. J. Gagnou
 Electrical transmission system J. B. Whitehead
 Electrically-controlled indicator W. L. Fitzgerald
 Electrodes, Manufacture of magnetic W. Seeger
 Embroidering machine B. Saner
 Embroidery frame G. Duacan
 Embroidery hoop A. N. Thomas
 Emery-wheel guard C. F. Landolt
 End and side clip W. B. Story
 Excavator J. L. Fairbanks
 Explosive motor for cars and the like W. F. Davis
 Extension table, Round-up J. Booker
 Eye cup W. E. Peters
 Eye shield C. N. Bruzard
 Fan, Traveling C. Chaney
 Fastening elements, Apparatus for modifying the size of O. N. Tevander et al.
 Fats, oils and fish oils into like bodies of higher melting points, Apparatus for converting M. Wilbuschewitch
 Faucet, Combination W. H. and J. E. Miller et al.
 Feed hopper, Poultry J. M. Franklin
 Feeder, Poultry C. L. Tawney
 Feeder, Poultry G. W. Heath
 Fence-wire fastener for fence posts J. Fisher
 Ferrule P. Muschiol
 Fifth wheel J. Villiger et al.
 Fifth wheel C. Wallace
 File, Document J. Boswell et al.
 Filing cabinet J. A. Fraser
 Filing cabinet W. F. Heffner
 Filter leaf C. L. Van Fossen
 Filter leaf C. Butters
 Filter media, Dislodging slime cakes from C. Butters
 Fire box (2 pats.) J. M. McClellon
 Fire-box construction J. M. McClellon
 Fire escape A. Wichertjes
 Fire escape T. C. Marshall
 Firearm F. J. Hupy
 Fish-cutting machine F. D. Cleveland
 Fish, Machine for cutting off the heads and tails of F. D. Cleveland
 Fish, Machine for handling and cutting F. D. Cleveland
 Fish, Positioning F. D. Cleveland
 Flashlight F. D. Cleveland
 Flooring J. C. Dutton
 Fluid-mixture regulator G. Machlet, Jr.
 Fluid-pressure engine (2 pats.) A. E. L. Chorlton
 Flume construction C. V. Craig
 Flush tank H. D. Moise
 Flushing apparatus H. D. Moise
 Folding cap, Sanitary J. V. Shaw
 Fuel mixer, Gaseous T. Cook
 Fuel of permanent shape and for rendering innocuous the sulphur contained in the coal, Production of weather-proof carbonaceous E. Pollacksek
 Furnace or oven-charging apparatus U. Wedge
 Furrow opener, Double-disk F. R. Packham
 Fuse and fuse carrier T. E. Murray
 Gauging and distributing articles of different thickness, Machine for L. L. D. Elderkin
 Galvanic cell M. L. Kaplan
 Garment and making the same, Weltd R. W. Scott
 Garment attachment J. W. Bruton
 Garment knife, Combination T. J. Littleton, Jr., et al.
 Gas burner E. H. Fisher
 Gas burner J. H. Ackroyd
 Gas cooler G. Eschellmann et al.
 Gas generator T. H. Armstrong
 Gas generator O. H. Ensign
 Gas generator and compressor F. D. J. Kaessmann
 Gas producer C. M. Garland
 Gas regulator P. Keller
 Gas regulator J. R. Ricketts
 Gas to a burner, Device for automatically cutting off the supply of C. Gordon
 Gases containing sulphur dioxide, Purification of R. Messel
 Gasolene jelly, Making J. E. Mitchell
 Gate J. J. Akre
 Gear, Variable T. Foster
 Gearing J. H. Gilman
 Gearing (2 pats.) C. G. Curtis
 Gearing V. G. Apple
 Glass machine L. Steelman
 Glue, Making F. G. Perkins
 Glue, Vegetable F. G. Perkins
 Graduating machine C. G. Trefethen
 Grain sampler W. J. H. and D. Grauenfels
 Grate G. E. Camp
 Grate bar F. Mahony
 Grave marker S. B. Rickards
 Grinding machine J. Pavelka
 Gun-firing mechanism, Electrical I. F. Galindez
 Guy clamp J. Blackburn
 Hacksaws, Hand guard for steel L. C. Biggs
 Hammer drill (2 pats.) W. Prellwitz
 Hammer, Shredding M. F. Williams
 Hand bag and the like A. H. F. Schliecker
 Hand warmer, Steering-wheel C. J. Hallum
 Hanger box W. S. Rogers
 Harrow A. L. Garlough
 Hasp J. H. Boye
 Hat fastener, Lady's S. C. May
 Hat-pin guard G. H. Judea
 Headlight B. Yoakum
 Heating system E. E. Allbee
 Heel-edge finishing and burning tool, Sectional G. A. Matson
 Heel plate (2 pats.) E. Hunold
 Heel trimmer R. L. Greenleaf
 Hinge C. J. and H. Soss
 Hinge H. B. Connors
 Hinge, Automobile door F. Hanba et al.
 Hog trap H. S. Fleagle
 Hoisting apparatus C. K. Ernst
 Hoisting device J. A. Vaughn
 Horseshoe R. C. Bonnell
 Hose-coupling clamp ring D. Rinaldo
 Hose-nozzle holder H. Austin
 Hose rack M. Schnaier
 Hydrogen, Production of H. Lane
 Ice bag, water bottle and fountain syringe, Combination C. J. Barrenpohl
 Igniter F. W. Goerdes
 Ignition-system timing device J. F. Middleton
 Implement holder G. F. Schahl
 Incubators, Electric regulator for C. C. Carter
 Index tab H. B. Burckhart
 Insect trap W. H. Grasser
 Insulator-making machine A. C. Oppenheimer
 Insulator J. E. Mateer
 Insulator J. E. Harris
 Internal-combustion engine E. J. Hall
 Internal-combustion engine F. B. Berman
 Internal-combustion engine W. R. McKeen, Jr.
 Internal-combustion engine N. C. Ward
 Iron, Treating J. Kirby
 Ironing device D. J. Feely
 Ironing table J. H. Scott
 Jack W. J. Page
 Jack and wreuch, Combined R. H. Gregory
 Kinematographic apparatus for taking and projecting views by means of photographic plates R. A. Robin
 Knitting machine, Circular (3 pats.) H. A. Houseman
 Knitting machine, Circular E. E. Preston
 Knitting machine, Double-rib-warp O. Gabel
 Knitting-machine stop motion, Circular H. A. Houseman
 Knitting-machine take-up motion, Circular H. A. Houseman
 Knitting machines, Needle picker for circular H. E. Houseman
 Knockdown wheel J. E. Strietmeier
 Labeling machine F. Dodge
 Laminated forms, Adjustable holder for L. R. Carroll
 Lamp W. S. Hamm
 Lamp, Acetylene-gas P. W. Lohmann
 Lamp, Arc R. Fleming et al.
 Lamp, Bichromatic (Reissue) J. H. Rry
 Lamp bracket for automobiles, Adjustable E. C. Clapp
 Lamp burner, Safety C. T. Siebert
 Lamp, Portable reading G. W. Cassidy
 Lamp socket C. A. Vetter
 Lamp socket, Electric M. Schwartz
 Lamps, Detachable shade holder for electric P. H. Robinson
 Latch, Gate F. Slattery
 Lathe attachment W. S. Nortou
 Lathes, Tail-foot for B. D. Jackson
 Life-saving apparatus W. Pinczes
 Lightning arrester J. A. Holton
 Limit switch H. J. Wiegand
 Liner, Adjustable J. F. Hoxsey
 Linotype mold F. H. Lynds
 Liquid-desiccating apparatus C. E. Gray et al.
 Liquids, Separating mixtures of A. Golodetz
 Locking mechanism C. P. Hoffman
 Locomotive M. Mahoney
 Locomotive attachment W. A. Jones et al.
 Locomotive, Railway M. Mahoney
 Locomotive-tender frame H. M. Pfleger
 Log-decking apparatus J. T. O'Hara
 Log stake B. T. Harrop
 Looms, Electromechanical warp stop-motion for J. F. Dustin
 Looms, Let-back for take-up mechanism of S. S. Jackson
 Lubrication, Splash system of (Reissue) E. M. White
 Lute, putty, and the like, Manufacturing C. F. Ljungdahl
 Magnesium, Preparation of metallic R. W. Wallace et al.
 Mail-bag-handling apparatus H. F. Brunkenhoefer
 Mail-bag-transfer device A. F. Kruser
 Malt, seeds, &c., Apparatus for treating L. Topf
 Man-lift elevator C. E. Bird
 Marble, Making artificial J. B. Turuer
 Mask, Fireman's A. F. Macrini
 Massage apparatus, Electric J. Thorell
 Match-splint material, Treating F. A. Fairburn
 Mattress fabric, Wire J. L. Tandy
 Measuring apparatus J. W. Gamble
 Mechanical movement J. H. Burpee et al.
 Mechanical movement T. S. Homans
 Medical electric-current regulator A. J. Hoenes
 Metal article, Composite L. B. Tebbets, 2d
 Metal or alloys into molds, Apparatus for melting, compressing and forcing W. G. Hanna, Jr.
 Metal strips, Machine for coiling D. L. Summey
 Metals, Producing clad B. E. Eldred
 Meter and valve, Combined A. A. Bowser
 Microtelephones, Amplifying case for W. B. Oliver
 Milk and similar food, Machine for drying J. O. A. Amundsen
 Mold and liner J. E. Hoxsey
 Mow spreader D. P. L. Campbell
 Musical instrument J. F. Kelly
 Musical instruments, Pneumatic action for C. J. Monfredini
 Musical string instrument, Mechanically-operated G. K. Hennig
 Needle J. R. Reynolds
 Note-sheet terminal E. G. Clark
 Nozzle, Adjustable spray E. H. Lamiell
 Nut lock W. F. Ludwick
 Oil burner, Revolving endless band J. K. Toles
 Ordnance, Flang-fire device for breech-loading (2 pats.) A. T. Dawson et al.
 Ore concentration G. A. Chapman et al.
 Ore feeder and sampler W. L. Morehouse
 Ores, Treatment and separation of complex sulphide T. R. Forland
 Organ coupler (2 pats.) W. E. Haskell
 Oven, Bake J. Faulds
 Oven, Chamber A. Gohmann
 Overhead lines, Anchor structure for T. Varney
 Overhead switch C. K. Murray
 Overshoe holder or clamp C. R. Schuey
 Paper bag E. Jagenberg
 Paper-box machine E. H. Taylor
 Paper weight J. E. Drake
 Parasol B. L. Henry
 Pattern-grading machine C. E. Reed
 Paving, Street J. Banwell
 Pea drill J. G. Becker
 Pen, Fountain A. Farmer
 Pencil sharpener L. B. Chadwick
 Photographic plates to be developed in daylight, Apparatus enabling R. L. Caballero
 Piano, Automatically-operated A. G. Gulbransen
 Picture machines, Film-signal for moving A. F. Koch
 Piling, Metal sheet W. B. Templeton
 Pin C. F. Markham
 Pipe-peening machine J. I. Pilston
 Piston head W. H. McGroery
 Planing machine, Wood P. A. Solem
 Planter, Potato E. Bowker
 Planters, Shifting guide for corn W. J. Gosnay
 Plasterer's or painter's scraping pan P. E. Murphy
 Plate, Perforated F. Hornby
 Playing mechanism, Pneumatic action for automatic E. Swanson
 Plow E. Seidler
 Plow J. C. McRae, Jr.
 Plow L. H. Olson
 Plow comb J. J. Specht et al.
 Plug, Attachment G. W. Goodridge
 Pneumatic-dispatch apparatus T. Bemis
 Pommous, Machine for manufacturing A. and H. C. Harvey
 Potato separator G. E. Luve
 Power-transmitting means M. W. Weir
 Preheater and furnace shield W. S. Rockwell
 Presses, Paper guide for L. Bakke
 Presses, Retaining device for H. Slater
 Printing bar or slug F. F. Wilson
 Printing-machine plate-holding means H. Tugender
 Printing machine, Rotary sheet E. P. Sheldon
 Printing press J. Bucher
 Printing presses, Sheet-delivery mechanism for rotary M. A. Droitecour
 Propeller, Fish-tail B. Stevenson
 Propelling engine or motor J. H. Poage
 Propulsion, Steam prime mover for marine C. G. Curtis
 Pulp distributor W. E. Darrow
 Pump J. F. Warner
 Pump, Centrifugal D. M. Hey
 Pump for lubricating systems (2 pats.) E. Woerner
 Pumping air or other fluid, Device for G. W. Nyquist
 Punch, Centering O. Christenson
 Push-button switch J. H. Smedley
 Rack or support F. Steinhoff
 Radiator made of wrought iron H. Steffen
 Rail chair J. H. Beatty
 Rail chair, splice bar, and tie plate, Combined G. W. Himler
 Rail joint H. F. Roach
 Rail joint W. G. Chipleay
 Rail joint J. Reinhardt
 Rail joint R. T. Berry
 Rail-joint fastening and the like J. M. Dorsey
 Rail joint, Railway W. J. Morehouse
 Railway joint crossing G. Dupes
 Railway, Pleasure F. Ingersoll
 Railway rail P. N. Madsen
 Railway rails, Anticreeping device for E. B. Powers
 Railway safety appliance G. I. Ponder
 Railway tie J. P. Donovan
 Railway tie C. B. Stebbins
 Railway tie and fastener F. F. Pongratz
 Rake W. J. Price
 Range, Combined coal and gas E. Becker
 Range, Cooking J. E. Daniel
 Ratan scraper H. Meier
 Razor, Safety A. Bippart
 Razor, Safety D. Beard
 Razor, Safety H. E. S. Holt
 Receptacle, Sanitary W. A. Ball
 Receptacles, Machine for applying closures to O. N. Tevander et al.
 Refrigerator W. D. Adams
 Releasing device D. Jacques
 Respirator W. F. Fanning
 Rheostat, Automatic H. M. Grossman et al.
 Rim, Sectional S. S. Morris
 Riveting machines, Magnetic pick-up for D. C. Sasseman
 Rotary engine R. A. Stewart
 Rotary engine E. G. Jones et al.
 Rotary furnace or fire box A. Smallwood
 Rotary sprinkler E. Geiger
 Roundabout N. J. Shamroy
 Rule, Border N. S. Van Saut
 Ruler and blotter, Combination H. J. Taylor
 Running gear F. L. Roth
 Safe N. Angood
 Safe construction M. M. ...
 Sash balance W. H. ...
 Sash holder J. ...
 Saw feeding mechanism T. ...
 Saw jointer J. ...
 Saw-setting machine W. ...
 Saw tooth, Detachable E. ...
 Scale, Vehicle E. ...
 Scrubbing machine, Rotary T. ...
 Seal lock L. ...
 Sealing machine, Bottle A. ...
 Seed separator and planter, Cotton J. ...
 Self feeder J. ...
 Shade-roller adjuster J. ...
 Shaft attachment J. ...
 Sheet-folding machine, Metal E. ...
 Sheet metal, Bending and drawing N. ...
 Sheet-metal bending and drawing apparatus N. ...
 Sheet-metal structure, Hollow A. ...
 Shelf, Folding S. ...
 Ships or any kind of vessels, Apparatus for cleaning the hulls of F. ...
 Shock absorber J. ...
 Shoes, Machine for operating on F. ...
 Shuttles, Friction device for J. ...
 Sifter, Ash N. ...
 Sign, Changeable-letter O. ...
 Signal apparatus C. ...
 Signal box C. ...
 Signals, Method of and means for giving T. ...
 Signaling mechanism C. ...
 Signaling system C. ...
 Silo F. ...
 Sintering, Treating materials for O. ...
 Siphon E. ...
 Slaw or kraut cutter W. ...
 Sleigh and wheel vehicle, Combination W. ...
 Sleigh runner G. ...
 Smoke-cleaning device C. ...
 Smoke-consuming mechanism D. ...
 Snap-switch lock attachment C. ...
 Soldering iron, Electric M. ...
 Soldering stick L. ...
 Spectacles and eyeglasses, Mounting for C. ...
 Speed measure (Reissue) J. ...
 Spinning and twisting frames, Machine for automatically removing the full pirns in F. ...
 Spinning machines, Weight lever for E. ...
 Spinning mule J. ...
 Spray burner J. ...
 Spring and friction shock absorber, Combined C. ...
 Spring terminal clip C. ...
 Spring wheel V. ...
 Square and level, Adjustable F. ...
 Stacking mechanism W. ...
 Stage footlighting C. ...
 Stall construction H. ...
 Stamp O. ...
 Stamps, labels, or the like to envelopes or the like, Machine for affixing I. ...
 Stamping device D. ...
 Stanchion, Cattle A. ...
 Starting device W. ...
 Stay bolt (2 pats.) E. ...
 Steam ejector M. ...
 Steam trap and system for draining water of condensation from steam coils P. ...
 Stilt G. ...
 Stocking or sock and knitting the same R. ...
 Stone and making same, Artificial A. ...
 Stone washer and separator W. ...
 Stone washers and separators, Screening tray for W. ...
 Stove, Cooking W. ...
 Stoves, Heat-distributor or bake-oven for gas and gasoline B. ...
 Stovepipe holder H. ...
 Strainer L. ...
 Straw spreader J. ...
 Street and road construction J. ...
 Stuffing-box attachment E. ...
 Suit box I. ...
 Sulphur from hydrogen sulphide and sulphur dioxide, Obtaining W. ...
 Superphosphate, Manufacturing double T. ...
 Surface indicator L. ...
 Surgeon's operating table A. ...
 Surgical instrument C. ...
 Switch-operating mechanism W. ...
 Switch-throwing and locking mechanism A. ...
 Synchronizer, Automatic R. ...
 Syringe, Vaginal L. ...
 Tables, Fastening device for folding A. ...
 Tag and guard therefor M. ...
 Tannin and the product, Producing C. ...
 Telegraph receiver, Printing G. ...
 Telegraph, Ship's F. ...
 Telegraph system E. ...
 Telephone J. ...
 Telephone-exchange system W. ...
 Telephone-exchange trunking system A. ...
 Telephone system, Automatic F. ...
 Telephone systems, Protected-cable-terminal box for T. ...
 Temperature controller M. ...
 Templet, Flexible T. ...
 Tie and tie-plate support C. ...
 Tie for binding sheaves or the like R. ...
 Tiles, Machine for classifying G. ...
 Tire, Automobile E. ...
 Tires, Manufacturing multiple-chamber inner tubes for pneumatic A. ...
 (Continued in March Number)

The Most Valuable Techno-Chemical Receipt Book Published

Henley's Twentieth Century Book of RECIPES FORMULAS AND PROCESSES



Edited by GARDNER D. HISCOX, M. E.

Price, \$3.00 Cloth Binding \$4.00 Half Morocco Binding
800 large Octavo (6 x 9½) Pages.

Contains over 10,000 Selected Scientific, Chemical, Technological,
and Practical Recipes and Processes, Including Hundreds of
so-called Trade Secrets for every business.

To present here even a limited number of the subjects which find a place in this valuable work would be difficult. Suffice to say that in its pages will be found matter of intense interest and inmeasurable practical value to the scientific amateur and to him who wishes to obtain a knowledge of the many processes used in the arts, trades and manufactures, a knowledge which will render his pursuits more instructive and remunerative. Serving as a reference book to the small and large manufacturer and supplying intelligent seekers with the information necessary to conduct a process, the work will be found of inestimable worth to the Metallurgist, the Photographer, the Perfumer, the Painter, the Manufacturer of Glues, Pastes, Cements, and Mucilages, the Compounder of Alloys, the Cook, the Physician, the Druggist, the Electrician, the Brewer, the Engineer, the Foundryman, the Machinist, the Potter, the Tanner, the Confectioner, the Chiropodist, the Manicure, the Manufacturer of Chemical Novelties and Toilet Preparations, the Dyer, the Electroplater, the Enameler, the Engraver, the Provisioner, the Glass Worker, the Goldbeater, the Watchmaker and Jeweler, the Hat Maker, the Ink Manufacturer, the Optician, the Farmer, the Dairyman, the Paper Maker, the Wood and Metal Worker, the Chandler and Soap Maker, the Veterinary Surgeon, and the Technologist in general.

Among the Recipes given are:

Bleaching, Etching and Engraving
Recipes for Glass Making, Paper Making
Recipes for Ointments
Mirror-Making Formulas
Paint Making Formulas
Gilding and Galvanizing Recipes
Bronzing, Tinning and Silvering Recipe
Recipes for Adhesives
Plating and Enameling Recipes
Cleaning Processes, Soap Making
Leather and its Preparation
Recipes for Alloys, Recipes for Solders
Photographic Formulas
Shoe Dressing and Stove Blacking Recipes
Rust Preventive Recipes

Recipes for Lubricants and Oils
Recipes for Dyes, Colors, and Pigments
Recipes for Dryers and Inks
Recipes for Artificial Gem Making
Jewelers' and Watchmakers' Recipes
Household Formulas
Waterproofing, and Fireproofing Recipes
Recipes for Cements, Glues, Mucilages
Recipes for Fireworks
Alcohol and its uses
Recipes for Essences and Extracts
Dentifrice, Cosmetic, and Perfume Recipes
Tanning Recipes
Metallurgical Formulas
Hair Restorers, and Depilatories

And many thousands more—Equally Important in the Arts and Manufactures

Address: THE INVENTIVE AGE Publishing Co., Washington, D. C.

A GREAT BARGAIN \$1.75 Value for \$1.00

One Year's Subscription for McCall's
Magazine, Any 15-Cent McCall
Pattern you may select, One
Year's Subscription for
The Inventive Age.

ALL FOR ONLY



\$1.00



McCall's Magazine

Is a large, artistic, handsomely illustrated hundred-page monthly magazine. It contains sixty new Fashion Designs in each issue. Every woman needs it for its up-to-date fashions, entertaining stories and complete information on all home and personal topics. Over one million subscribers. Acknowledged the best Home and Fashion Magazine. Regular price, 5 cents a copy. Worth double.

McCall Patterns

Are so simple you cannot misunderstand them. Absolutely accurate. In style, irreproachable. You may select, free, any McCall Pattern you desire from the first number of the magazine which reaches you. Regular price, 15 cents.

The Inventive Age.

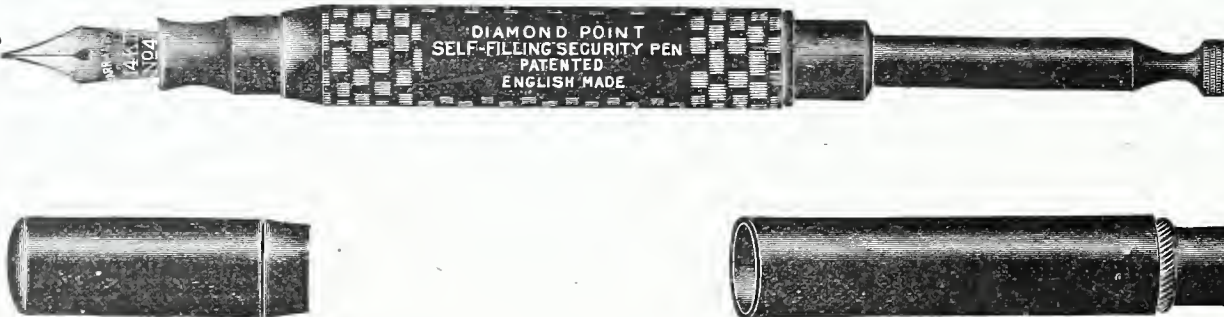
A journal of manufacturing industry and scientific progress. The indispensable paper for patentees. Contains matter and information not found elsewhere. Regular price, \$1.00 per year.

The DIAMOND

SELF-FILLING AND
SELF-CLEANING

Fountain Pen.

IT IS AWAY AHEAD
OF ANY OTHER PEN
MANUFACTURED BE-
CAUSE OF ITS SELF-
FILLING AND SELF-
CLEANING FEATURES



No Soiled Fingers.

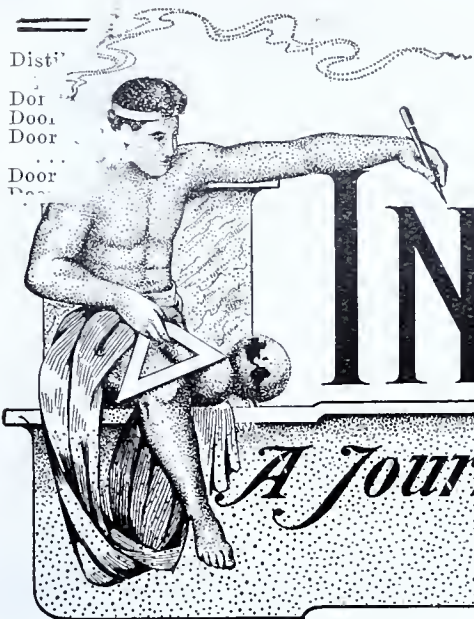
No Lost Time.

Price \$2.00.

Including one year's
subscription to "The
Inventive Age."

Address--- INVENTIVE AGE PUB'L. COMPANY, WASHINGTON, D. C.

SEND FOR OUR FREE CATALOGUE OF BOOKS FOR
INVENTORS AND MECHANICS.



The INVENTIVE AGE

A Journal of Manufacturing Industry and Scientific Progress.



VOL. XXVI. NO. 3. }

WASHINGTON, D. C.—MARCH, 1914.

} SINGLE COPIES 10 CENTS.
ONE DOLLAR A YEAR.

INDIRECT ELECTRIC LIGHTING.

By FRANK C. PERKINS.

THE accompanying illustration, Fig. 1, shows the effect of indirect electric lighting in the home. The system of indirect illumination for residences is, without a doubt, the perfect method. In the home, where above all other places, harmony and restfulness are needed, the glare of exposed lights has frustrated all attempts to reach this end.

It is maintained that indirect illumination will be found an important agent for conserving the eyes, and it has already opened a new field of home

increasing or decreasing the intensity of illumination.

This method of indirect illumination is especially valuable because of its conformity to laws of lighting which are often disregarded. It is a singular fact that although artificial light is counted as a necessity by all civilized and by many uncivilized peoples, it is seldom used with proper knowledge of the principles that should govern its employment. General illumination must not only be adequate in amount, but suitable in kind, and should be so

fathomable ages accumulated the characters wrought upon it by evolution until it bears the impress and incurs the limitations of its environment. It works best over a rather limited retinal area and through a range in in-

lower eyelid. The Alaskan Indians have evolved an effective protection against snow blindness in the shape of leather goggles with a semicircular cut made for the peep-hole, the flap being turned outward and downward,



FIG. 1.—INDIRECT LIGHTING IN THE HOME.

decoration. The illustration shows clearly how this method of lighting has increased the beauty of the furnishings and established the correct relationship to produce this harmonious result. Pull chain sockets allow for

applied as not to react injuriously upon the eye.

It must be remembered that the human eye is not merely a rather indifferent optical instrument, but a physical organ which has through un-

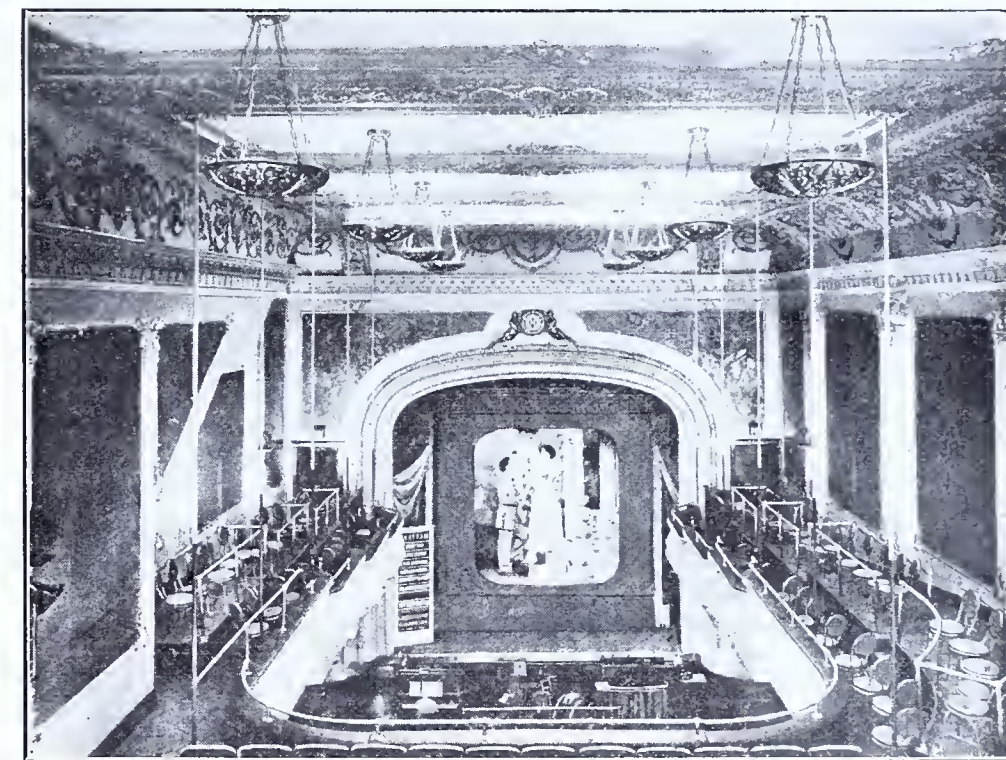


FIG. 2.—MOVING PICTURE THEATRE WITH INDIRECT LIGHTING.

tensity of light which, although great, is yet immensely smaller than the range available to nocturnal creatures. It has, moreover, become habituated and adapted to, light coming obliquely from above and resents strong illumination, whether natural or artificial, from any other direction. It seems to be well known, for instance, that the distress caused by the reflected glare from sand, water or snow, is due not so much to the light itself as to the fact that it is directed upward into the eye and is quite insufficiently stopped by the rather transparent

so that the eye is guarded from the brilliant upward beams. Blackening the lower eyelid with burnt cork is said by a famous oculist to be efficacious for the same purpose. The methods of lighting above described are thus seen to have the special advantage of insuring that no light, direct or reflected, shall enter the eye except from above. They also do away with excessive glare. It is known that it is injurious to the eyes to read by too faint a light, but it is perhaps not as widely recognized that too bright a light is equally trying. Any-

thing over two or three candle power per square inch should be avoided. The light in this case is so completely diffused that too much does not enter the eye at one time. The method is especially well adapted to the lighting of railway stations. At night, when weary travelers may wish to rest or even to snatch a nap between trains, the provision of a soft and sufficient light, which by no possible chance can annoy the eye, is most grateful.

In the modern moving picture show this new method of electric lighting is used with good effect. No form of public amusement has ever achieved such wide popularity as the moving picture exhibition. The illumination of these theatres of the people presents the paradox of requiring a room that is dark in order to bring out the pictures, but at the same time has sufficient light to afford comfortable ingress and egress and to prevent moral danger.

It is held that there is a perfect solution to this problem, and that is the use of indirect electric lighting, which has now become of great service in many of the newer theatres. The perfectly diffused light from the ceiling does not interfere with the full effect of the projected picture, even where the resulting illumination is so high as to give almost a daylight effect.

The photograph shows how perfectly the picture is brought out on the screen with a general illumination that shows all of the details of the theatre. The room is 38 feet by 80 feet and has a total of 3040 square feet of surface. The ceiling is 40 feet high, and eight composition howls are used with reflectors 36 inches from the ceiling. There are seven tungsten lamps used, of 60 watts, each giving 1.1 watt per square foot.

It may be stated that under the balcony are located six shallow bowls, each containing four 60 watt lamps. During the performance two lamps are allowed to burn in each of the four rear bowls on the upper ceiling, and one lamp in each of the bowls under the balcony.

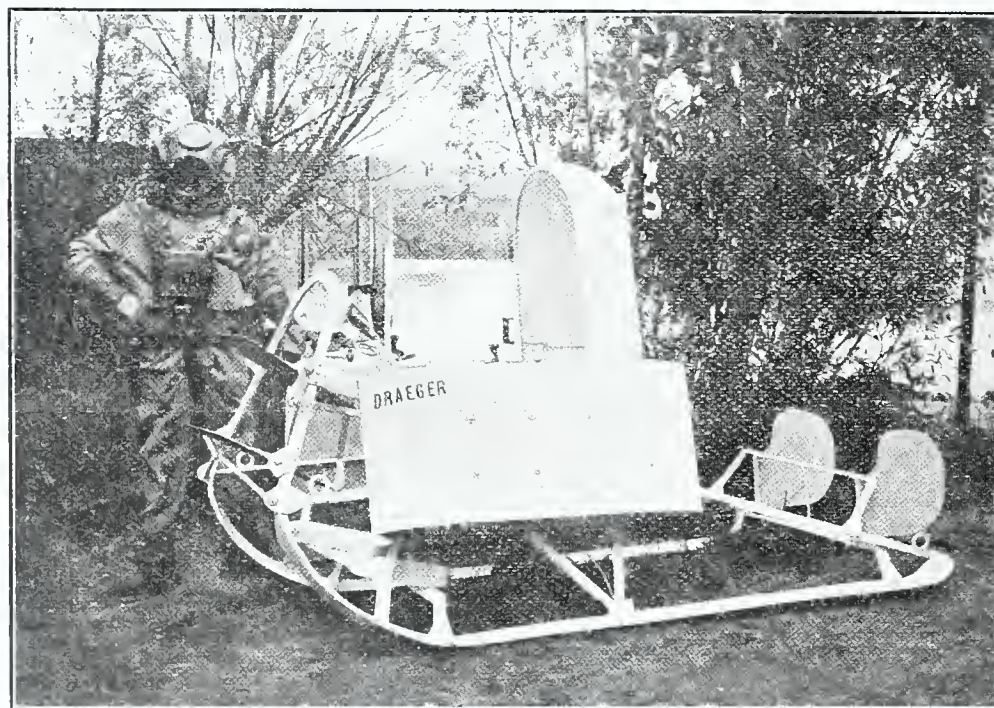
Counting Words on Typewriters.

A device for counting the words written on a typewriter is of great use to telegraph companies, court reporters, public stenographers and in other cases where an actual count is required. The principle of the attachment is a rocking frame, on one side of which contact is made by all letter levers. A mechanism attached to the rocking frame operates the registering apparatus and the register is worked by the stroke of the first letter lever of a word. The rocking frame remains in that position so long as the striking of letters continues and until the striking of the space-bar lever or a punctuation lever. The latter reverses the position of the rocking-frame and "sets" the register-actuating mechanism for the next registration. The rocking frame remains in this position until reversed by the stroke of the first letter of the next word.

A GERMAN SUB-MARINE SLED.

THE accompanying illustration shows a novel submarine sled used by divers, the apparatus being adapted to float on the surface and be towed into place before being submerged. It is equipped with a breathing device and with an air supply for the diver's use, and can be employed at depths down to 125 feet.

The submarine sled was designed and constructed at Lubeck, Germany, and is provided with air and oxygen supply tanks of a capacity sufficient for the diver's use for a period of three or four hours. The diver has a pipe connecting his helmet with an air supply on the submarine sled, and with periods of rest has remained under water from six and one half to seven hours in a single day.



A compact equipment has also been designed for operation without the use of the submarine sled, this apparatus being strapped on the diver's back and representing a self contained diving outfit. This latter apparatus, provided with a telephone set and connected by a flexible cable 200 feet long

with a reel on the boat at the surface, makes it possible for the diver to be in constant communication with his assistants above, or those in charge of the work.

The advantages to be gained by this submarine sled and self-contained diving apparatus are many. The diver is more free to move about at his work, and the necessity of having an air pump on the surface, with supply pipes and their attendant difficulties, is entirely avoided.

The cost of operation for an equipment of some 80 gallons capacity for about two hours service is 4.75 marks (\$1.20) or about 2.4 mark (sixty cents) per hour for the material utilized. The total weight of the apparatus without telephone is 190 kilograms (418 lbs.)

and 240 kilograms (529 lbs.) with the telephone transmitter, receiver and auxiliary apparatus. This equipment was recently utilized by a diver to descend to about 70 feet below the surface, to inspect the salt intake of the electric power plant of the City of Lubeck, Germany.

Advances in Radiography.

During the last few years, says *Popular Electricity*, wonderful advance has been made in the manufacture of both powerful high tension transformers and induction coils for radiographic purposes, and work is now being done in seconds and even fractions of seconds where many minutes were required but a few years ago.

The progress of designing and building of apparatus, however, has not been proportionately greater than the development in the science of radiography. In former years it was believed that the radiograph or X-ray plate was limited in its usefulness to showing bone structures, fractures,

dislocations and foreign bodies which are dense enough to cast a shadow. To-day, however, radiographs are being made of nearly every part of the body, and such parts as the lungs, heart, kidneys, stomach, intestines, &c., may be seen on the radiographic plate. In order to show such parts, the operator must necessarily be a skilled one.

The discovery that salts containing silver or lead cast a shadow has led to the adoption of certain chemicals which are harmless when pure, and when administered in limited quantity.

Thus Reider, the German scientist, first used a preparation of bismuth which was fixed in food and eaten by the patient and the exact shape of the stomach shown. The bismuth can be

followed by a series of plates so that all the intestines can be indicated.

The way in which the arteries may be shown for the purpose of study is as follows: The hand of a cadaver is severed and the arteries located. A powerful syringe previously filled with a paste made of bismuth and vaseline is attached to the artery. The paste is then gently forced into the arteries. A great deal of care is required so as not to rupture the arterial walls, but if the work is done slowly the bismuth will flow evenly into the fine capillaries.

The practical value of such a plate lies in the ability of the student to study the circulation, and it is probable that the medical student of the near future will in this way be able to avoid some disagreeable dissecting.

Glass Houses.

Houses of glass may have the proverbial drawback, but there are practical advantages. A structure open to the rays of the sun throughout will need no artificial light by day, it can be kept in a clean and sanitary condition, and it will promote the health of its occupants. Nor is all this a Utopian dream. Wire glass is already used as a preventive for fire, and innovations are introduced in the daily manufacture of glass which make its power of resistance and its strength greater. Experiment has shown that a plate of re-inforced glass less than a quarter of an inch thick, four feet long and a trifle less than two wide, can support a weight of 1,107 pounds. And even under the weight of 1,422 pounds, it did not break, only bent and cracked. A room built of this glass can have a fire in it and the temperature increased from zero to 1,800 degrees before the structure entirely collapses, since the wire between the sheets holds the glass together even after it cracks.

Already glass rooms have been made in hospitals. Glass roofs cover libraries and railway stations, letting the light pour into the dark spaces below. For economy, permanence, the best environment of the employees, fire protection, day long illumination, and perfect ventilation, the glass house is the ideal structure. It would also have the advantage of being cool in summer and warm in winter, since the walls would be non-conductors.

Recently a glass brick factory was established in Ohio to turn out glass bricks, which, being hollow on the inside, might admit light and yet regulate the heat and, so to speak, insulate the building. This same theory will be followed out in the roofing of the future glass house. There will be an inner roof of glass, not heavy or thick, and then, with about three inches' space between, there is another roof, heavier, and more capable of withstanding the weather. This dead air space between the roofs prevents the transmission of either heat or cold and neutralizes the top of the building.

If a man building a house desires one room a pale blue or a sunny

yellow he can have his bricks made of colored glass and suffuse his room with any desired color, or he can have his whole house of one color, with daylight coming in only through the windows and the color of the room eliminating the necessity of inner glass paneling or pasted tiling.

Imagine a city of glass: In the slums, where before were darkness and filth, cleanliness and sunshine have entered in. The consumptive no longer languishes in a stuffy, pitch black room, so dark that no eye can see the heaps of dirt and refuse that have accumulated in the corners. Every corner now is as light as day.

And in the factory district, hundreds of thousands of square feet of sun illumined wall area guarantee a maximum amount of light and the uniform diffusion of clear white daylight throughout the deepest interiors. Girls can perform the most difficult and minute work without fatiguing the eyes.

There are great possibilities in the glass house, and the economy of the scheme is not the least. At present glass is expensive on account of the loss through breakage, but the materials of which it is made are the cheapest and the easiest to procure. Since machinery has taken the place of hand blowing the expense of production has been minimized, and now the initial cost of a glass building exceeds that of concrete or wood by only 5 to 8 per cent, and, of course, the upkeep and repairs are practically nothing.

Reinforcing the Culebra Cut.

The slides along the banks of the Culebra Cut have given serious trouble to the engineers of the Panama Canal. One of the methods suggested for preventing these land slides is the provision of an underground system of reinforced concrete posts and tie rods. According to this plan, a row of underground posts would be set parallel with the banks of the canal, and braces with other posts set at an angle to them. To set these posts, holes would be drilled from the surface of the loose strata to the firm rock below the level of the canal bottom. After the bottoms of the holes have been "sprung" with dynamite to form enlarged cavities in the firm strata for anchorage, steel rods would be placed in the holes for reinforcement. Then cement grouting would be forced into the holes under a pressure of about one thousand pounds per square inch, so that the concrete would penetrate all the fissures in the rock and form a secure anchorage. The vertical piles would form a secure foundation for a retaining wall, and the inclined posts would act as the diagonals of a strong dam of triangular section. Combined with this, adequate drainage and subdivision of the slope and an underground dam to protect the edge of the slope from wave action, are suggested as a means of preventing future trouble.

THE INVENTIVE AGE contains sound advice to inventors and patentees. For lack of such advice many have lost money. Subscription price, one dollar a year.

THE LARGEST HYDRAULIC VALVES IN THE WORLD.

WITHOUT doubt the largest electrically driven gate valves in the world are those constructed for the Niagara Falls hydro-electric plant of the Ontario Power Company. An automobile was driven through one of the valves without difficulty, as shown in Fig. 2. Three of these valves, nine feet in diameter, of the Chapman type of waterway were constructed at Indian Orchard, Mass., each weighing 130,000 pounds. They were designed to control the water to drive a hydraulic turbine developing 12,000 horsepower, coupled to a three-phase alternating current generator.

ing and knocking of the same inside the gate as they rotate, the spindle sleeves are bored in the cast steel gate, with an easy fit over the spindle, while automatic limit switches are employed, making it impossible to operate the spindle in the wrong direction.

It is held that the motor cannot restart in the wrong direction on account of the location of these automatic limit switches at the ends of the gate travel. There is a magnetic brake provided, which assures quick stopping of the mechanism, and the connections are such that the electric motor may be restarted in either direction if the gate

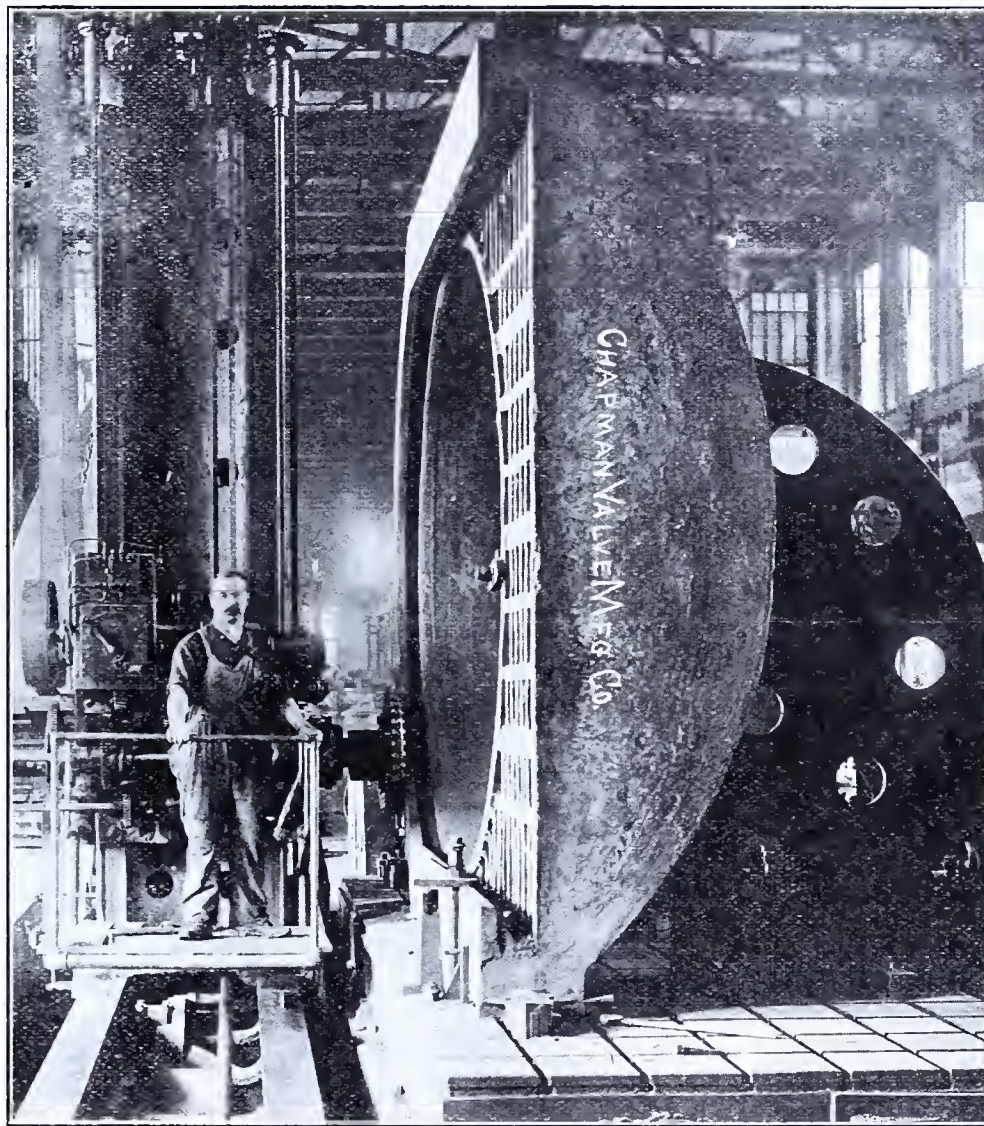


FIG. 1.—LARGEST HYDRAULIC VALVE IN WORLD.

The width of the valve is eleven feet and the overall height more than 30 feet, while the thickness over the flanges is 6 2-3 feet and the total load carried by each gate is more than a half million pounds, (or over 275 tons) when in operation, the gate valve being under a pressure of 60 pounds per square inch. For relieving the water pressure when operating and closing the valve, a 14 inch-by-pass is utilized.

An electric motor of the alternating current type, of 15 horsepower capacity, is employed for operating this valve. About three minutes are required to completely shut or open the same, by returning the spindles which are over 12 feet long, and measure 4 1/2 inches in diameter. There are two of these spindles required for raising the valve gate, the spindles being of Tobin bronze and having thread of two inches pitch. To prevent thrash-

ing is part way shut or open. In making the molds for these enormous valves, it is stated that a large part of the deep core work was in green sand, and the pattern was made up in sections, with the flanges and ribbing screwed to the main part from the inside. After the whole pattern was rammed up with the green sand, it was dismantled from the inside by taking out the screws and removing the parts separately, thus avoiding a large amount of dry sand core work. For the facing of the top flanges of the car and drilling rivet holes in the boring mill, as well as for the facing of the body valves, large tools and careful work were required. All of this was accomplished by electrically operated tools and labor saving devices.

The size of these valves can be made more apparent by comparison with a valve that was considered, up to this time, one of the largest in use, but

which is a mere pigmy beside this newly created monster. The valve in question was one of the several in use at a colliery in British Columbia, having been sent there from a factory in Connecticut. The valves consisted of two of 72 inch and two of 50 inch standard iron body, taper seat wedge gate valves, with by-passes and spur gears. The 72 inch ones are used, contrary to the usual custom in this class of work, not for low pressure but for a hydraulic working load of 125 pounds, and the 50 inch ones under a load of 165 pounds per square inch. The larger ones weigh 51,020 pounds or about 25 tons apiece, this figure being six tons more than the low pressure type. The valves are of a new type, having two bronze spindles upon which the huge gates, weighing four and a half tons, may be readily raised and lowered by the 42-inch

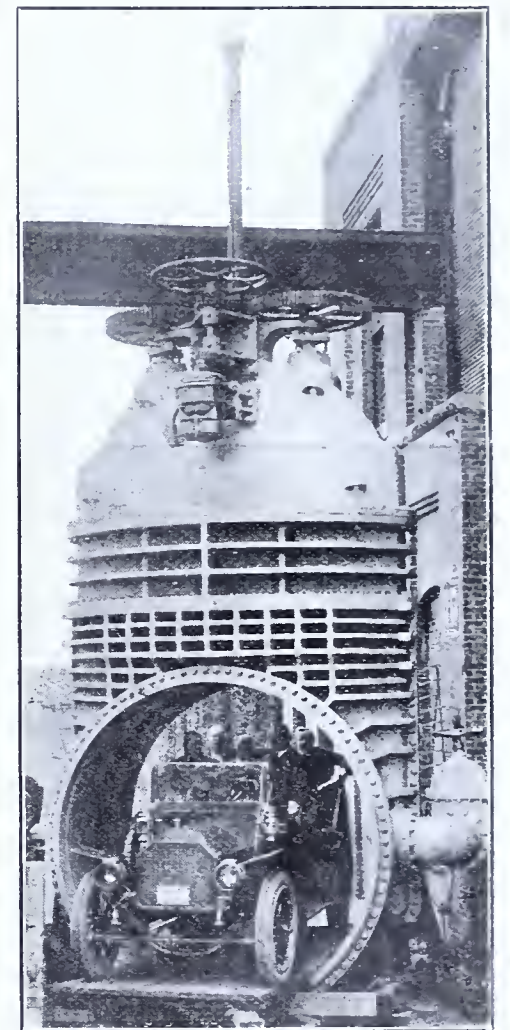


FIG. 2.—DRIVING AN AUTOMOBILE THROUGH THE VALVE.

hand wheel, which operates in connection with the gears. In shipping the valves from Connecticut across the continent, they occupied a flat car apiece.

Aerial Tramway for Milk Cans.

On a large dairy farm in North Carolina, an aerial cableway is used to transfer milk cans from the barns to the dairy. Twice a day, quantities of milk are sent over the line to be pasteurized and packed for shipment. Two large cans make one load for the two-wheeled truck which runs along a heavy cable. Gravity furnishes the motive power for the cableway, the supports at the ends of the line being arranged so that either end of the cable can be raised or lowered.

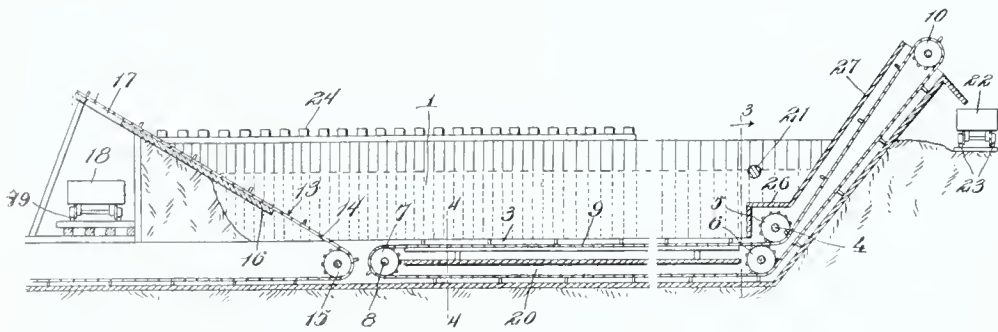
CLEVER NEW PATENTS.

POND CLEANER—MECHANICAL MOVEMENT—VACUUM CLEANING APPARATUS.

Pond Cleaner.

In sawmills where log ponds are used, it is customary to shut down the mill at different times so that the pond may be cleaned of sunken logs, bark and dirt which have accumulated therein; and, moreover, it is only possible to operate the mill by having several men on the pond to move the floating logs toward the jack slip. Clinton Decker, of Rainelle, West Va., has invented an apparatus for transporting the logs and keeping the pond clean, and, at the same time, producing a current of water.

In the accompanying illustration, which represents a central, sectional view of the apparatus, 1 designates the log pond, which is constructed by making an excavation of suitable depth and then flooring the bottom of the excavation with planks which are inclined from a central trough 3 to a point adjacent the surface of the water, at the edge of the pond. The trough 3 is arranged centrally of the pond at its deepest point, and extends longitudinally of the same. On a transverse shaft 4 at one end of the trough, is a large sprocket wheel 5, and at the opposite end of the trough is a sprocket wheel 7, journaled upon the shaft 8, which is the power shaft of the apparatus. A conveyor chain 9 extends beneath the sprocket wheel 5 over and around the sprocket wheel 7, and beneath the sprocket wheel 6. It is then extended upwardly around a sprocket wheel 10. This chain is provided with flights and suitable log-engaging spurs which are adapted to engage with the sunken logs and carry them

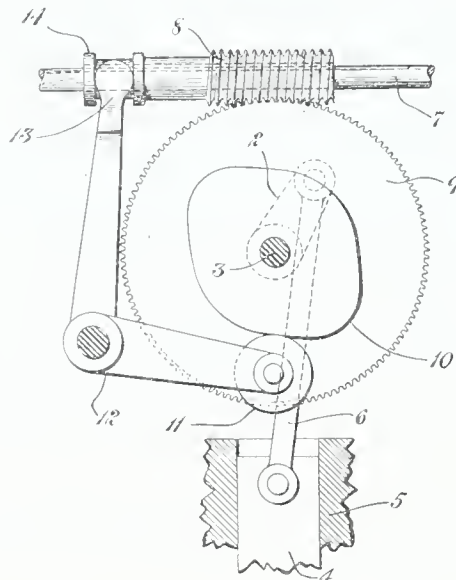


toward the jack slip conveyor 13. The latter consists of a similar chain 14 extending around a sprocket wheel 15 arranged slightly below the sprocket wheel 7, so as to receive the dirt, bark and logs from the chain 9. The chain 13 travels over an inclined platform 16 which is formed in two parts, having an opening 17 between the parts to permit the dirt, bark and other foreign material taken from the pond to drop into the cars 18 arranged on tracks 19 for that purpose. The lower stretch of the chain 9 travels in a flume 20 arranged below the trough 3, and extending on an incline out of the end of the pond at a point adjacent to the sprocket wheel 10. It will be noticed that the lower stretch of the chain 9 in passing through the flume does not affect in any way the current in the pond as regards the progress of the logs towards the jack slip, and being thus confined, will carry any dirt, bark or other foreign matter dropping into the flume 20 over the sprocket wheel 7 and out of the flume, and dump the same into the cars 22, located beneath the discharge end of the flume and mounted on the tracks 23.

Mechanical Movement.

One would think that it would be impossible at this late day to invent a new mechanical movement, but the Patent Office evidently thought that the invention of Willard T. Sears, of Hartford, Connecticut, was something new, for it granted him a patent with broad claims. The patent has been assigned to the Pratt & Whitney Co. of the same place. The invention is clearly shown in the accompanying cut, which represents a side elevation. One of the objects of the invention is to provide means by which a crank can be so driven as to insure uniform speed of the device operated thereby. It is a well known fact that a crank motion is desirable in certain connections, but it has the recognized defect when used for creating a reciprocatory motion, that the motion of the reciprocated part is variable. By the patented device the inventor provides

a mechanism for revolving a crank having as a part thereof means for varying the speed of said crank during a predetermined period or periods of



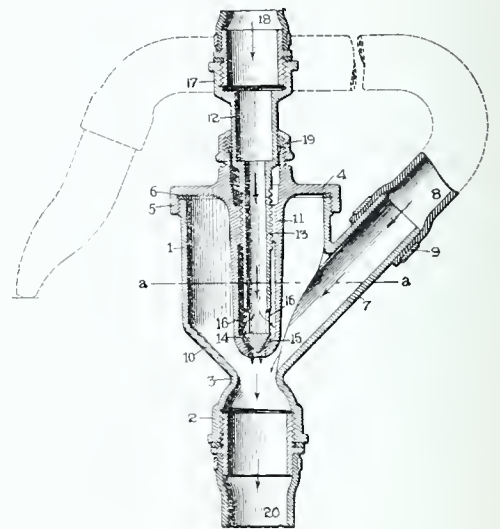
its action, so as to thereby attain uniformity of speed of the driven part or device. Referring to the illustration, 2 denotes a crank consisting of an

arm fastened to the shaft 3, so that as the shaft rotates, the crank will be revolved to transmit through the link 6 a reciprocatory motion to the slide 4, supported by the framing 5. A power shaft 7 which is used to rotate the shaft 3, has splined thereon for rotation therewith, a worm 8 in mesh with the worm gear 9 keyed to the shaft 3. In addition to the rotary movement, the worm is given a longitudinal movement by means of the mechanism shown, consisting of a double cam 10 mounted on the shaft 3 active against an antifriction roller 11, mounted on one branch of the angle lever 12, the other branch of said lever having a fork which engages a groove in the collar 14 provided on one end of the worm 8. It will be noted that as the lever 12 is rocked, the worm 8 is moved in an endwise direction. The worm tends to maintain the antifriction roller 11 in contact with the cam 10. The lobes of the cam are of duplicate construction. By this arrangement, the crank arm 2 is progressively accelerated and progressively retarded at different or successive periods of its revolution.

Vacuum Cleaning Apparatus.

One of the greatest difficulties with vacuum cleaners has been to regulate the strength of the vacuum to the area of the suction opening in the tool, and thus provide on one hand enough suction to properly clean the fabric, while avoiding the creation of a suction strong enough to pull out the nap or a portion of the material and thereby injure or destroy the carpet or other fabric. A recent invention by James P. Clifton, of Buffalo, New York (assignor to Water Power Vacuum Cleaner Company of Buffalo) provides an adjustable nozzle that overcomes this difficulty by regulating the volume of water flow by the rapidity of pressure of the same, thus regulating the strength of the air suction. The device has a hollow body with a cap carrying a fluid injecting nozzle with a needle valve, said nozzle being connected to a source of fluid under

pressure. A tubular coupling 7 (see illustration) extends from the side of the body and has connected thereto a flexible tube. The coupling projects in longitudinal alinement with the tapered walls of the lower part of the body, as seen in the cut. By this means the air enters the tubular body directly in a straight line, and is not deflected until it gets to slightly above the contracted portion 3. The cleaning tool is attached to the outer end of the tube. The nozzle is formed separate from the cap, its lower part being screwed into the portion 11. The lower end of this lower part tapers down. The nozzle is thus made vertically adjustable, which varies the size of the annular outlet 15 between the inside of the lower end of the portion 11 and the outside of the lower end of the



nozzle. This allows a means for varying the rapidity of flow of fluid, also the volume of the flow. Side openings in the portion 13 provide outlets. Through the socket 17 connection is made with a pipe extending from a source of fluid under pressure. A discharge pipe 20 leads from the suction element. When the water is turned on, a continuous stream passes down through the lower part of the tubular head into the discharge pipe and creates a partial vacuum in the tubular body, reducing the suction in the flexible tube so as to draw dirt from the fabric. The air containing this dirt passes out through the discharge pipe. The volume of the stream may be regulated by adjusting the valve needle in the proper direction.

PATENTS

Send Your Business Direct to Washington ∴ ∴
∴ ∴ Saves Time and Insures Better Service.

Trade Marks,
Copyrights
and
Designs.

My office is close to the U. S. Patent Office. Personal attention given—OVER THIRTY YEARS PRACTICE. Book "How to Obtain Patents," etc., sent free. Patents procured through E. G. Siggers receive special notice, without charge, in the—

INVENTIVE AGE

Illustrated Monthly—Twenty-sixth Year.
Terms, \$1.00 a Year.

E. G. SIGGERS, 918 F STREET, N. W.,
WASHINGTON, D. C.

LATEST COURT DECISIONS IN PATENT, COPYRIGHT AND TRADE-MARK CAUSES.

SIEMUND v. ENDERLIN et al.

(District Court, E. D. New York, June 12, 1913. 206 F. R. p. 283.)

1. PATENTS—INVENTION—INSTALLATION FOR ELECTRIC WELDING.

The Siemund patent, No. 967,578, for an installation for electric welding, claim 2, is void for lack of patentable invention.

2. PATENTS—PROCESS.

The functions performed by certain apparatus, when arranged under certain conditions, cannot be patented as a new method of producing the result, if the so-called method is merely a description in new terms of one of the forms of the old process, as carried out by the previously disclosed necessary elements of the device, and where the so-called new method is but the description of an equivalent experimentation with the old device under conditions recognized as possible, within the knowledge of any mechanic but not previously stated in language.

3. PATENTS—VALIDITY—PROCESS OF ELECTRIC WELDING.

The Siemund patent No. 967,579, for a method of electric welding, is void as not for a process in a patentable sense but as in fact descriptive of an expert mechanical application of an old method with a statement of the proper adjustment and manipulation of known devices to obtain the best results. Also held void for prior use of the so-called method of the defendant.

ADAMS & WESTLAKE CO. v. PETER GRAY & SONS, Inc.

(District Court, D. Massachusetts, July 2, 1913. 206 F. R. p. 303.)

1. PATENTS—VALIDITY AND INFRINGEMENT—SIGNAL LAMP.

The Hamm patent, No. 651,782, for a signal lamp, covers specific improvements of construction, rather than any new principle of construction or operation, the efficiency of the lamp in respect to prevention of blowing out and prevention of sweating being due to its special form, and not to any conception of a new principle or of any generic feature of novelty; and while as a specific structure it discloses patentable novelty and invention, its claims must be limited to such structure. As so construed, held not infringed.

2. PATENTS—CONSTRUCTION OF CLAIMS—IMPROVEMENT PATENTS.

When the improved result accomplished by a patented device is due to a more exact or refined application of old principles, care must be taken to limit the claims to those new features which give the better result.

CROWN FEATURE FILM CO. et al. v. BETTIS AMUSEMENT CO. et al. UNIVERSAL FILM MFG. CO. v. BETTIS et al.

1. COPYRIGHTS—SUITS FOR INFRINGEMENT—IMPOUNDING ALLEGED INFRINGING ARTICLES—PROCEDURE TO OBTAIN RETURN.

The court cannot entertain a motion for an order to show cause why articles impounded as alleged infringements of a copyright, under Copyright Act March 4, 1909, c. 320, §25, 35 Stat. 1081 (U. S. Comp. St. Supp. 1911, p. 1480), should not be returned, unless a showing is made by affidavit, as required by rules 9, 10, and 11, adopted by the Supreme Court (172 Fed. v.), that the articles seized are not infringing copies.

2. EQUITY—PLEADING—AMENDMENTS.

It is within the discretion of the court to permit the amendment of a bill pending a demurrer thereto.

3. EQUITY—PLEADING—DEMURRER.

Affidavits cannot be considered in support of a demurrer to a bill.

DE VOE SNUFF CO. v. WOLFF.

(Circuit Court of Appeals, Sixth Circuit, June 3, 1913. 206 F. R. p. 420.)

1. TRADE-MARKS AND TRADE-NAMES—INFRINGEMENT.

Complainant and its predecessors in business have for more than 70 years been continuously engaged in the manufacture of snuff, widely sold throughout many states and for some years largely advertised. During all that time its mills have been known as the "Eagle Mills" and it and its predecessors have used on their packages and stationery the picture of an eagle and the words "Eagle Mills" or "Eagle Snuff," so that its product has long been known to the trade and to users as "Eagle Snuff." Held, that it was a common-law trade-mark in the picture of an eagle and in the word "eagle" as applied to snuff, whether used in connection with other words or not, and that the use by defendant on its packages of snuff of the picture of an eagle and the name "White Eagle Snuff" was an infringement, although both picture and name differed materially in appearance from those used by complainant.

2. TRADE-MARKS AND TRADE-NAMES—INFRINGEMENT—TEST OF INFRINGEMENT.

It is not necessary to constitute infringement that every element of a trade-mark be appropriated nor that it be completely copied, but a proper test is whether, taking into account the resemblances and differences, the former are so marked that the ordinary purchaser is likely to be deceived thereby.

3. TRADE-MARKS AND TRADE-NAMES—INFRINGEMENT—EXTENT OF IMITATION.

The protection accorded to a trade-mark is not limited to such imitations as would deceive a cautious and discriminating customer, but include as well such as would be likely to deceive the ordinary or unwary purchaser.

4. TRADE-MARKS AND TRADE-NAMES—SUIT FOR INFRINGEMENT—INJUNCTION.

That an infringer of a technical trade-mark did not know of its prior use by another is immaterial as respects the right of the owner to an injunction.

MURRAY v. DETROIT WIRE SPRING COMPANY.

(Circuit Court of Appeals, Sixth Circuit, June 3, 1913. 206 F. R. p. 465.)

1. PATENTS—SUIT FOR INFRINGEMENT—EFFECT OF PREVIOUS ADJUDICATIONS.

A decision sustaining the validity of a patent is conclusive in the same court in a subsequent case, unless there is materially different evidence.

2. PATENTS—INFRINGEMENT—EVIDENCE.

That an alleged infringing device is covered by a later patent than the one in suit does not raise a presumption that it does not infringe, but only that there is a patentable difference between the two structures.

3. PATENTS—INFRINGEMENT—SPRING SEAT.

The Murray patent, No. 692,535, for a spring seat, held infringed by the structure of the O'Brien patent, No. 954,331.

4. PATENTS—INFRINGEMENT.

Infringement is not avoided by impairment of the functions of an element of a patented device in degree, if the distinguishing function is retained, nor by adding elements to the completed structure of the patent.

ACME STEEL GOODS CO. v. AMERICAN METAL FASTENERS CO.

(District Court, N. D. Illinois, E. D. July 18, 1913. 206 F. R. p. 478.)

1. PATENTS—SUIT FOR INFRINGEMENT—PLEADING.

In a suit for infringement of a patent for an improvement in the manufacture of metal fasteners, evidence is admissible to show that there was a demand for such fasteners, that they had not gone into commercial use because of their cost, and that such cost had been so reduced by the patented machine that they at once came into general use, and under the new equity rules such facts should be pleaded.

2. PATENTS—VALIDITY AND INFRINGEMENT—PROCESS AND MACHINE FOR MAKING METAL FASTENERS.

The Norton patents, No. 859,636, for a process of making corrugated metal fasteners, and No. 956,540, for a machine for practicing such process, held infringed by a machine which embodies the essence of the invention and differs from that of the patent only in increasing the number of parts and using three operations to accomplish what is done by the patented process and machine in one.

UNITED DRUG CO. v. THEODORE RECTANUS CO. et al.

(District Court, W. D. Kentucky, July 11, 1913. 206 F. R. p. 570.)

1. TRADE-MARKS AND TRADE-NAMES—ADOPTION—PRIORITY OF USE—INJUNCTION.

Complainant's predecessor in business, whose name was "Regis" prior to 1880, adopted the word "Rex" as her trade-mark, and used it in connection with the sale of medicinal preparations made by her and sold for the cure of dyspepsia or other kindred diseases. Complainant in 1900 registered the name as a trade-mark in the Patent Office. Defendant's predecessor, without knowledge of complainant's use of the word, adopted the same word as his trade-mark upon another closely related medicinal preparation, which use was continued by defendant until suit was brought; no attempt having been made by it to register the same as a trade-mark. Held, that complainant by virtue of the priority of use was entitled to an injunction against the future use of the word "Rex" in connection with the character of preparations put out by it in connection with which it had been previously used, but was not entitled to an accounting of profits against defendant, nor to an assessment of damages for unfair trade.

2. TRADE-MARKS AND TRADE-NAMES—INFRINGEMENT—DEFENSES.

In a suit to restrain defendant's use of the word "Rex" in connection with a medicinal preparation sold in competition with complainant's "Rex" Dyspepsia Tablets, the fact that such tablets were made from drugs which were deleterious, harmful, or worthless, when erroneously prescribed or administered, was no defense.

WOLF BROS. & CO. v. HAMILTON-BROWN SHOE CO.

(Circuit Court of Appeals, Eighth Circuit, May 20, 1913. 206 F. R. p. 611.)

1. TRADE-MARKS AND TRADE-NAMES—UNFAIR COMPETITION—EVIDENCE OF INTENT.

In cases of unfair competition, the fraudulent intent is often inferred from the facts, sometimes against the sworn protestations of the defendant.

2. TRADE-MARKS AND TRADE-NAMES—SUIT FOR UNFAIR COMPETITION—MEASURE OF DAMAGES.

In patent and strict trade-mark cases, the infringer is held for account for profits accruing because of the unauthorized use of the property right; and uncompetition in trade may, under proper conditions, entitle the injured party to the same measure of relief.

3. TRADE-MARKS AND TRADE-NAMES—UNFAIR COMPETITION.

A manufacturer of shoes, which stamped upon the soles a trade-name so nearly resembling that used by a competitor as to be calculated to confuse purchasers, did not avoid a charge of unfair trade by placing its name as maker conspicuously on the carton in which each pair of shoes was sold to the retail dealer.

4. TRADE-MARKS AND TRADE-NAMES—UNFAIR COMPETITION.

If a manufacturer or wholesale dealer willfully puts up goods in such way that the ultimate purchaser will be deceived into buying them as the goods of another, it is no defense that he does not deceive and has no intention of deceiving the retailer, to whom he himself sells the goods; but the question is whether he has or has not knowingly put into the hands of the retail dealers the means of deceiving the ultimate purchaser.

5. TRADE-MARKS AND TRADE-NAMES—SUIT FOR UNFAIR COMPETITION—MEASURE OF DAMAGES.

In such cases the complainant in a suit for the unfair competition will not be held to specific proof that ultimate purchasers were deceived, and limited to loss of profits thus established; but it will be presumed that sales made by defendant were the result of unlawful invasion of his rights, especially when it appears that the unlawful use of the name was one of the causes, and it is impossible to apportion between that and other causes the credit for such sales.

FERRO CONCRETE CONST. CO. v. CRETE STEEL CO.

(Circuit Court of Appeals, Sixth Circuit, May 6, 1913. 206 F. R. p. 660.)

1. PATENTS—"INVENTION"—DETERMINATION ON DEMURRER.

"Invention" is a question of fact, and when it is raised on demurrer, must be determined from what is shown on the face of the patent, aided by matters of common and general knowledge at the time of the alleged invention of which the court may take judicial notice, as to which it may reinforce its recollection by antecedent and reliable publications.

2. PATENTS—INVENTION—EVIDENCE.

In seeking to ascertain on which side of the dividing line between invention and mechanical skill the device of a patent belongs, if it shall appear that through a new combination a novel and useful result is achieved, the court is not to be misled by the apparent simplicity of the device, or by the fact that the elements of the combination are old.

3. PATENTS—VALIDITY—CONCRETE FLOOR.

The Nolte patent, No. 859,511, for a process of constructing a concrete floor by which the nailing sleepers are first placed in position and attached to the temporary floor by brackets and the concrete laid in a single layer, held not void on its face for lack of invention.

WEIR FROG CO. v. PORTER.

(Circuit Court of Appeals, Sixth Circuit, May 16, 1913. 206 F. R. p. 670.)

1. PATENTS—INVENTION—APPLICATION TO NEW USE—"DOUBLE USE"—"NEW RESULT."

A patent for a semiautomatic railway switch, which by means of a weight attached to the operating lever returns to its former position after the lever has been manually raised and held to permit the passing of a train or car, and which in its mechanical operation is the same as the device of a prior patent, from which it differs only in that one in its normal position leaves the main track open while the other leaves the switch track open, is an instance of "double use," producing no new result in a patentable sense and which does not constitute invention.

2. PATENTS—INVENTION—RAILWAY SWITCH.

The Porter patent, No. 556,317, for a derailling switch, is void for lack of invention in view of the prior art, and especially of the Martel patent, No. 243,933.

DAVID et al. v. HARRIS.

(Circuit Court of Appeals, Second Circuit, May 12, 1913. 206 F. R. p. 902.)

PATENTS—VALIDITY AND INFRINGEMENT—SWEATER.

The Weinschenk patent, No. 925,146, for improvements in sweaters, consisting of the attachment to a low-necked sweater of two infolding lapels and a collar, which can be turned up to convert it into a high-necked sweater, discloses patentable invention, and is entitled to a reasonable range of equivalent; also held infringed.

LUTEN v. TOWN OF LEE et al.

(District Court, D. Massachusetts, July 29, 1913. 206 F. R. p. 904.)

PATENTS—INFRINGEMENT—WHAT CONSTITUTES.

The fact that a town adopted plans for bridges which embodied a construction covered by patents, and advertised and accepted bids thereon, does not render the town or bidder liable for infringement, where, on learning the patentee's claim, the plans were changed, and the patented construction was not used.

BORDEN'S CONDENSED MILK CO. v.

HORLICK'S MALTED MILK CO. et al.

(District Court, E. D. Wisconsin, July 24, 1913. 206 F. R. p. 949.)

TRADE-MARK AND TRADE-NAMES—UNFAIR COMPETITION—WHAT CONSTITUTES.

A controversy between the manufacturers of two articles, which concededly may properly be designated by the same name, as to which is the "original and only genuine" article of that name, does not involve any property rights which may be determined by a court of equity and protected by injunction.

MECHANICAL INVENTIONS

Patents for which have been procured through the Patent Soliciting Office of E. G. Siggers, Patent Lawyer, Washington, D. C.

William C. Berry, Marshall, Texas. Peanut Picker and Pea Huller.—The object of the present invention is to provide a practical and efficient machine, capable of picking peanuts from the vines, instead of beating or flailing the same, so that few of the peanuts will be damaged by the picking operation, and at the same time will be free from dust. The machine comprises a casing provided with a hopper having a bottom and open at one end, a rotary picking cylinder arranged within the casing below the open end of the hopper and provided with projecting spikes or teeth, an adjustable guiding leaf located below the picking cylinder and arranged opposite the open end of the hopper, an inclined chute arranged to receive the picked material, and an endless conveyor belt extending around the chute for carrying the vines out of the machine, said belt having openings to permit the picked material to pass through it. The machine is also provided at the lower end of the inclined chute with a vibratory chute, having a screen for sifting the picked material.

Charles Brown, Northwood, Iowa, inventor; Alfen P. Sawyer, Glenville, Minn., assignee. Monument.—It is the aim of the present invention to provide a monument equipped at the top with means for holding growing plants, and having an interiorly arranged tank adapted to contain a relatively large amount of water, located below the plants, so that the evaporation of the water will maintain the soil around the plants in a moist condition, thereby obviating the necessity of watering the plants at frequent intervals. The monument, which is hollow, comprises a plurality of separate hollow sections supported on one another and having registered openings forming a vertical chamber, a tank or reservoir arranged within the chamber and fitting the interior thereof and overlapping the joints of the sections, and a plant receptacle constituting the top of the monument and having an intermediate exterior flange resting upon the top section. The lower portion of the receptacle extends into the vertical chamber of the monument and is provided with openings.

Arthur Brigden, Albertville, Ala. Six patents.—The first patent relates to a spring tooth cultivator, more especially the means for securing the teeth in their adjustment, and it has for its object to provide a device designed to be connected with the pivoted tooth-carrying bars and with the beam of the cultivator so as to permit the tooth-carrying bars to be adjusted backwardly and forwardly on their pivots, and thus arrange the spring teeth at opposite sides of the cultivator beam in the desired positions and capable of rigidly securing the teeth in their adjustments. The device comprises angularly disposed adjusting links pivotally connected at their front ends with the tooth carrying bars and having their rear portions crossed beneath the beam and provided with longitudinal slots, a vertical bolt operating in the slots and piercing the beam, and clamping plates arranged on the beam and provided with teeth or corrugations interlocking with corresponding teeth or corrugations of

the links to prevent the latter from slipping.

The second patent also relates to the means for mounting the spring teeth of a cultivator, and the aim of the invention is to provide a device capable of permitting the spring teeth to be raised and lowered to adjust the teeth to fit the ground or to regulate the depth of the teeth next to the plants, so that the bed may be uniformly cultivated from one side to the other. The device consists of a bracket pivotally connected to the front and rear tooth-carrying bars of a cultivator, and provided with a plurality of slots arranged in a vertical series and adapted to receive the cultivator teeth to permit the same to be raised or lowered.

The invention of the third patent is designed for use on spring tooth cultivators of that type in which a gang of teeth is disposed at each side of the beam, and each gang is independently adjustable so as to be disposed at any desired angle to the line of travel of the cultivator, while maintaining their parallel relation to the beam. The invention has for its object to provide means by which the gangs may be readily adjusted, and the teeth will be secured in such manner as to have the necessary play, without being so loosely supported that they are liable to become displaced. The device comprises a beam, a plurality of teeth, each having its front end doubled under and formed into upper and lower branches, front and rear cross bars pivotally attached to the beam and extending over the teeth, connections between the front cross bar and the front ends of the teeth, and a supporting bar hung on the rear cross bar and attached to the lower branches of the teeth.

The object of the invention of the fourth patent is to provide a fender applied to the beam of a cultivator for shielding the plants, and adapted to ride over stalks and other obstructions without dragging the same along the ground and tearing up the plants. Another object of the invention is to provide a fender adapted, when desired, to permit a small quantity of fine soil to sift through the plants. The fender consists of inclined pivotally mounted arms, provided at their lower ends with pivots, opposite rotary disks mounted on the pivots, and opposite fender plates connected at their rear ends to the arms by the said pivots and extending rearwardly beyond the disks and coacting with the same to prevent dirt from being thrown on the plants.

The fifth patent covers a disk cultivator designed to be drawn by one horse for cultivating between rows of plants, and equipped with independently adjustable disks which may be arranged in various adjustments to secure the desired lead and pitch, and also to enable the cultivator to slope so as to fit the bed to be cultivated. Another object of this invention is to enable the beam and handle to be arranged in a plumb position while cultivating along the side of a hill. The cultivator comprises in its construction a beam, laterally extending bars pivotally connected to the beam, longitudinally disposed bars carried by and pivotally connected with the laterally extending bars and having their terminal portions bent downwardly and provided with vertically arranged pivot portions, and disks provided with means for adjustably mounting them on the pivot portions of the longitudinal bars.

The invention of the sixth patent has for its object to provide a tooth-supporting bracket adapted to be readily applied to the tooth carrying bars of a cultivator, and permitting the spring teeth to be raised or lowered

to regulate the depth of penetration. Another object of the invention is to provide a bracket for firmly clamping a spring tooth to prevent the lateral movement which frequently results from irregularity in the sizes of the parts, due to casting of the pieces. The invention comprises a cultivator tooth having an eye at its front end, a bracket provided with resilient compressible sides and having front and rear perforations, a pivot mounted in the front perforation and passing through the eye of the spring tooth, and a bolt arranged in the rear perforation and adjustably securing and clamping the spring tooth between the sides of the bracket.

Charles W. Colbert, Tonasket, Washington. Combined Book and Pencil Holder.—The object of the invention is to provide a cheap and convenient device adapted to be readily secured to the cover of a memorandum, check, or other book for maintaining the book in the pocket, regardless of the depth of the latter, and at the same time holding the pencil or pen holder in associated relation with the book. The device comprises a support adapted to be secured longitudinally against the outside of the cover of a book, a slide movable along the inner side of the support, a spring-actuated clamp positioned at the outer side of the support, an arm extending transversely from the slide and lying flat against the cover of a book, and a pencil or pen holding sleeve formed at the outer end of the said arm and offset so as to cause the pencil or pen to lie against the edge of a book.

John H. Hogston, Ladysmith, Wisc. Power Loading Ash Pit.—The object of this invention is to provide an apparatus designed for handling ashes and cinders, and sometimes the fires dumped from locomotives into ash pits, which are generally arranged in the yards adjacent to a round house. A further object of the invention is to enable a single car, operated by any switch engine or other locomotive, to remove the ashes and cinders from all of the ash pits and convey the contents of the latter to a convenient dumping place, such as an elevated track, where the ashes and cinders may be discharged from such car into cars provided to convey away the ashes and cinders. The apparatus includes an ash receptacle designed to be arranged in a railroad ash pit to receive the ashes and cinders of a locomotive, a car having an opening of a size to receive the ash receptacle and adapted to be run over the ash pit to arrange its opening in register with the same, and hoisting mechanism carried by the car for raising and lowering the ash receptacle to arrange the same in the opening of the car and to return the ash receptacle to the pit.

Adam C. Hendricks, Martinsburg, W. Va.—Sash Lock.—The present invention is designed to provide a sash lock which will automatically lock when the window is closed and which can be instantly released from the inside, but which will be proof against any attempt to open the window from the outside. The sash lock comprises a casing provided at its rear wall with a vertical locking face, and a boss having an inclined locking face located in advance of and spaced from the vertical locking face, an operating lever mounted on the boss and provided with an opening leading to the inclined locking face of the boss, a roller mounted in said opening and adapted

to bear against the inclined locking face, and a bolt adapted to be releasably locked between the two locking faces by means of the said roller.

Walter A. McKenny and Stanley Beatham, Lincoln, Maine. Door Operating Device.—It is the object of the present invention to provide a door operating device for use in sliding freight car doors, and adapted to be readily applied to a freight car at a very low cost, and enabling a freight car door to be easily and quickly opened by one person, without injuring the door. The door operating device includes spaced upper and lower guides located in advance of the car door opening, a flexible connection extending beyond the sliding door and provided at the front with upper and lower branches arranged in the said guides and extending horizontally therefrom and connected to the top and bottom of the sliding door, a sprocket wheel mounted on the car in rear of the car door, and a sprocket chain arranged on and meshing with the sprocket wheel, one branch of the chain being connected to the flexible connection, and the other extending horizontally from the sprocket wheel to the sliding door and secured to the same at the center of the rear edge thereof.

William A. Kennedy and Joseph Evans, Wichita, Kansas. Covering for Hay, Grain, etc.—The invention relates to a water proof covering designed particularly for use in the fields by farmers and others for covering stacks of hay, grain, and the like, baled hay in the field, machinery, wagons and their contents, and various other objects which are usually left exposed to the weather on account of the lack of shelter. A further object of the invention is to provide a covering of this character, capable of easy application and adapted to be varied in size, both by adjustment and by additional sections, to provide a cover of the desired proportions. The device comprises a flexible cover, a supporting frame-work including adjustable transverse frames composed of horizontal bottom bars having telescopic sections, vertical side bars also provided with telescopic sections and connected with the sections of the bottom bars, and arched top bars connected with the sections of the side bars and composed of separable sections, and braces located at opposite sides of the frame work and connected with the transverse frames.

Nels Logan and Haakon P. Hanson, inventors; S. L. Hanson, assignee, all of Albert Lea, Minnesota. Cattle Stanchion.—The object of this invention is to provide a cattle stanchion having hinged or pivoted sides which are adapted to open and close and are connected by means capable of maintaining the same in an open position without the use of springs, and adapted also to permit the sides of the stanchion to be easily and quickly closed and securely locked. The stanchion includes sides hinged at their lower ends, angle levers pivoted together at their angles and having lower arms connected with the upper ends of the sides, links pivoted together at their upper ends and pivoted at their lower ends to the other arms of the angle levers, and coacting therewith to form a toggle for opening and closing the sides, and means for locking the sides in their closed position.

NEW PATENTS FOR SALE.

Advertisements inserted in this column for 10 cents a line (about 7 words) each insertion. Every new subscriber sending \$1.00 to THE INVENTIVE AGE will be entitled to the AGE one year and to five lines three times FREE. Additional lines or insertions at regular rates.

FOR SALE—Patent No. 1,061,421. Device to attach to rotary street sweeper for collecting sweepings. Address, John Suszycki, Reedshurg, Wisc. my

FOR SALE—Patent No. 1,076,228, dated Oct. 21, 1913. Currycomb and Cleaner. For further particulars address owner, Nathan W. Price, Route 1, Box 62, Columbus, Miss. my

FOR SALE cash or royalty—U. S. Patent No. 1,075,132. Car ticket holder. Discards one ticket at a time. Adaptable to all sized tickets. Can be carried in pocket. Address, A. Westensee, Galva, Iowa. my

FOR SALE outright—Patent on squeezing and pressing device for fruits and vegetables. Is very simple in construction; can be cheaply manufactured, and does its work perfectly. Address, Mike Nemes, Box 364, Fort Dodge, Iowa. my

FOR SALE—Patent No. 1,075,306. Window sash. Cheaply manufactured. Quick seller. A large profit to manufacturers. Terms outright or part royalty. For copies and information apply to E. C. Shepherd, Linden, Wisc. my

FOR SALE—I offer state right on mineral fertilizer patent granted by United States January 15, 1913. For further information address, Prof. E. C. Lindemann, Boulder, Colo. ap

FOR SALE—Patent No. 1,077,054, patented Aug. 26, 1913. The Hursh Folding Basket. Can be used for all purposes. Will sell outright. Terms reasonable. Address, Albert S. Hursh, Milton, Pa. ap

FOR SALE cash or royalty—Patent No. 1,076,345. Tire shoe for rubber tires of automobiles, etc. This shoe will prevent rubber tires being punctured and to keep them from wearing out. Address, A. S. Bullock, Aitkin, Minn. ap

FOR SALE Patents—or part interest in locks for public buildings. The only both ways operated single or double door locks on the market, catches either way, or makes push doors. Address, A. M. Hoes, Grand Island, Nebraska. ap

FOR SALE—Keep the nuts on your wagon. I have lock nut Patent No. 1,073,009, Sept. 9, 1913, which will do the business and do it right. Will sell outright or on royalty. It will pay you to investigate. Write Ralph Wolf, Box No. 16, Franktown, Colorado. ap

FOR SALE or on royalty—Adjustable razor hoe. Lies flat, and cuts front and back under vines, trees, fences. Shaves grass and weeds. Costs 25 cents. Sells for a dollar. Every yard owner wants one. Address, Wards Coast Lands, Weimar, Texas. ap

FOR SALE—Patent No. 1,072,654. Photographic film drying rack. Holds any size film. Saves considerable time and trouble in handling film negatives. Will consider any reasonable or even unreasonably small cash offer as I am not in position to promote or manufacture. D. J. Rorabeck, Ryegate, Montana. ap

FOR SALE—Patent issued Jan. 1914. Combination Salt and Pepper Shaker. Has merit. Will meet requirements, and will be a ready seller. Just the thing for mail order business. The man with brains and energy can make a fortune. Will sell outright or on royalty. Address, Hiram D. Kirkley, Paragould, Ark. ap

FOR SALE—I have patent pending, Serial No. 787,960, on an automatic lock for the inside of double doors, such as cupboards and the like, in the place of a hook. In opening the first door, the second door is unlocked, and closing the first door the second door is locked automatically. Simple and cheap to manufacture. Write for particulars, Frank E. Davis, R. F. D. No. 2, Payette, Idaho. mar

FOR SALE—Patent No. 1,022,626, dated April 9, 1912. Self-detaching holdback for all single horse vehicles. Works automatically and obviates the wrapping of shafts. When the traces are detached the draft animal is free to move forward from the vehicle. Will sell the patent at a reasonable price, as I am in the lumber business and have as much as I can attend to. For full particulars address, W. A. Hagerman, 897 Queens Ave. London, Ont. mr

FOR SALE—The only meritorious railroad rail joint coupling and support ever patented. Worth millions. Will sell cheap. Address, Charles C. Acker, Winnshoro, Tex. mar

FOR SALE—Patent No. 1,064,939, dated June 17, 1913. Adjustable stand for barrels and cans. All offers considered. Address, John Sunkler, Salinas, California. mar

FOR SALE—U. S. patent issued July 8, 1913. A twister shovel plow with narrow land bar, integrally formed. Would make a royalty deal or have them manufactured. A copy of patent and model to one interested. Address, W. T. Simmons, Langley, Ark. mar

FOR SALE—Patent No. 1,073,065, issued Sept. 9, 1913. The Altman fence gap fastener. A clamp to replace gates and bars in wire fences and to make gaps in wire fences quickly and at a small cost. Can be used on any kind of wire fence. Will sell cheap for cash. Write for particulars to George M. Altman, R. F. D. No. 66, Parkers Landing, Pa. mar

FOR SALE—U. S. Patent No. 1,073,475, and Canadian Patent No. 152,467. A vertical oil burner for cook stoves. Will sell outright or state rights. For particulars write, Frederick L. Weeman, 89 1-2 Portland St., Portland, Maine.

FOR SALE—Patent No. 1,043,687. A small crutch to be applied to any make of artificial limb. Is worn under the clothing and gives relief to wearer. Address, William A. Gilbert, 619 W. 127th St., New York City. mr

FOR SALE—Patent No. 1,030,028, dated June 28, 1912. Spark Arrester. Particularly designed for locomotive smoke stacks. Will prevent sparks and cinders from being ejected therefrom. Simple to build and cheap to manufacture. Address, Stampahar & Rom, P. O. Box 584, Red Lodge, Mont. mr

FOR SALE cash or royalty—U. S. Patent No. 1,070,414. Track adjusting device, and new improvements. Great labor saver in pulling ties and posts, lining tracks, etc. Address, John Contos, Box 114, Grand Island, Nebr. mr

FOR SALE—U. S. Patent No. 1,062,107, issued May 20, 1913. Wire spoon holder to prevent spoon slipping into kettle. Cheap to manufacture. All offers considered. Royalty proposition preferred. Address, S. E. Lyon, 1122 Ogden Ave., Menominee, Michigan. mr

FOR SALE—U. S. Patent No. 1,023,494, dated April 16, 1912. Current motor to produce power and light. Can be placed on any stream without damming or blocking same. Address, D. Bartoszwicz, Box 312, St. Joseph, Mich. mr

FOR SALE—U. S. Patent No. 1,067,778, dated July 15, 1913. The Beaver snow plow. For railroad and street cars. Will sell outright. Terms reasonable. Address, John D. Beaver, St. John, Kansas. mr

FOR SALE outright or on royalty—Patent No. 1,042,603. Removable buggy seat designed for carrying a third person. Something new and of merit. I have no means. If interested, address Mary Rockwell, Frankfort, Kansas. mr

FOR SALE—Cash. Patent No. 1,049,242, issued December 31, 1912. Combined mop holder and wringer. The mop will perform any one of the three different operations at will and without any adjustment whatever, either as a mop, mop wringer, or scrubber. Walls and ceilings may be cleaned. Simply remove the scrubber. The mop has been thoroughly tested for seven months and has been enthusiastically received by every woman who has tried one. All offers considered. Address, J. W. Krueger, Litchfield, Minnesota. mr

WANTED.

WANTED—Manufacturer to manufacture "Childs Weaving Frame," made of wood. Newly patented. Address, Frank Thomason, 124 Eufaula St., Norman, Okla. my

BUSINESS OPPORTUNITIES.

BUY SMITH'S END-LOCK STOVE PIPE

Let us give you prices on manufacturing your patents. Prices reasonable, well equipped. Patents bought and sold. S. D. Cruse & Co., Louisville, Ky. mar

CHAS. F. LAGANKE

MANUFACTURER OF

HIGH GRADE SPECIALTIES

MODELS AND EXPERIMENTAL WORK,

SPECIAL TOOLS.

Card Building, 118 St. Clair Ave. N. E.,

Correspondence Solicited. CLEVELAND, O.

Electrical Review and Western Electrician

Published weekly from the center of the industry, this publication is in the best possible geographical position to gather and present the most important and interesting news of the entire electrical industry.

SUBSCRIPTION PRICE

U. S. \$3.00 per year. Canada \$4.00 per year. Foreign Countries \$6.00 per year. Sample Copy Free

It is seen and read by practically every buyer of electrical material in this country and abroad. Advertising rates on application.

ELECTRICAL REVIEW PUBLISHING CO., 507 Marquette Bldg., CHICAGO.

A NEW BOOK FOR INVENTORS

Patents and How to Make Money out of Them,

By W. B. HUTCHINSON.

This is the only book published, giving a detailed and full account, from the author's actual experience, of just what steps are necessary from the time the invention is conceived, to the time it is sold, with a clear and concise resume of the law and practice, legally and commercially, of trade-marks and copyrights. It also tells accurately how and what to invent. How to sell inventions. Place them on the Market. Interest Capital in them, and to successfully Promote a Stock Company. It also contains an index of forms worth double the price of the book to any one interested.

ELEGANTLY CLOTH BOUND
GOLD STAMPED. \$1.00 Postpaid

Sent with one subscription to AGE for \$1.50

Or will sell separately.

Address—The Inventive Age Pub. Co.,

918 F St., N. W. WASHINGTON, D. C.

HALF-TONES ZINC ETCHINGS
DESIGNS

LANMAN

ENGRAVING

COMPANY

PROCESS ENGRAVERS, ILLUSTRATORS, DESIGNERS.
TRADE-MARK DRAWINGS
EXECUTED.

"Quality and Speed"

POST BUILDING

Fourteenth St., and Pennsylvania Ave. N. W.

Phone, Main 673

SEND FOR YOUR FREE COPY TODAY

OF

MODERN ELECTRICS & MECHANICS.

The big 148-page illustrated monthly magazine that tells you how to make flying machines, wireless sets, motors, engines, home furniture, models, etc., Invaluable to inventors and everyone who uses tools or is interested in mechanics or electrics. Profusely illustrates and describes these subjects in a style you will easily understand and enjoy.

You should read at least one non-technical magazine and keep up-to-date on the new wonders and advances in electricity and mechanics.

Fifteen cents per copy on news stands, \$1.50 per year by subscription.

To acquaint new readers with this distinctive illustrated magazine we will send sample copy free on request.

Send for your copy now.

MODERN ELECTRICS & MECHANICS 813 RELIANCE BLDG.,
NEW YORK, N. Y.

ATTENTION INVENTORS!

LISTS OF MANUFACTURERS FURNISHED.

We have increased our facilities for furnishing lists of manufacturers, and now cover every line of industry. The names are obtained from well known directories.

Our charge for each list is one dollar.

In ordering, please state specifically the class of manufacturers desired.

Address: INVENTIVE AGE Pub. Co., Dept. M. 918 F. St., Washington, D. C.

Every subscriber when sending \$1.00 is entitled to a free advertisement, not exceeding five lines, of any patent in which he may be interested. The ad. will be inserted three times.

THE INVENTIVE AGE PUBLISHING CO., Washington, D. C.

I herewith enclose \$1.00 for one year's subscription to

"THE INVENTIVE AGE."

I also enclose ad. for insertion in the (Patents for Sale*) (Want*) column of your paper.

NAME.....

P. O.....

STATE.....

*Please indicate in which column you want the ad. inserted.

N. B.—Remit in the way most convenient.

The Inventive Age

Established 1889.

Published monthly by

THE INVENTIVE AGE PUBLISHING CO.,

National Union Building, 618 F Street, N. W.,
WASHINGTON, D. C.

THE INVENTIVE AGE is sent, postage prepaid, to any address in the United States, Canada, Mexico, Hawaii, and Porto Rico, for ONE DOLLAR a year; to any other country, postage prepaid, ONE DOLLAR AND TWENTY-FIVE CENTS.

Correspondence with inventors, mechanics, patentees, and manufacturers, is invited. The columns of this journal are open for the discussion of such subjects as are of general interest to its readers.

Technical matter is particularly desired. We want practical information from practical men.

THE INVENTIVE AGE is independent.

Special facilities for furnishing cuts of any patented device together with descriptive article. Business specials 10 cents a line each insertion; 7 words to the line. No advertisement less than 25 cents.

Address all communications to

THE INVENTIVE AGE PUBLISHING COMPANY,
WASHINGTON, D. C.

Entered at the Post-office as 2nd class matter.

WASHINGTON, D. C., MARCH, 1914.

REPORT OF THE COMMISSIONER OF PATENTS

The report of Commissioner Ewing to Congress of the business of the Patent Office for the year ended December 31, 1913, which appears in the Official Gazette of February 17, 1914, will be of great interest to inventors, manufacturers, and attorneys. It is Commissioner Ewing's first report to Congress, and indicates in a general way what he hopes to accomplish in the administration of the Patent Office. The report gives a detailed statement of the receipts and expenditures for the year 1913, as well as comparative statements of the business of the Office from 1837 to 1913, inclusive. In addition, there is a table showing the number of patents issued by the United States and foreign countries from the earliest period to 1913, which shows that the U. S. Patent Office has issued nearly one-third of the patents granted throughout the whole world. A copy of the Gazette of Feb. 17, 1914, can be obtained for ten cents by writing to the Superintendent of Documents, Government Printing Office, Washington, D. C.

SURPLUS.

The total receipts of the Patent Office for the year aggregated \$2,084,417.79. The expenditures were \$1,947,383.28, leaving a surplus of \$137,034.51. The report shows that there has not been a deficiency since 1861. Since then, the Patent Office has earned a surplus, which has been turned back into the Treasury, the surplus varying from \$1,538.28 in 1898, the lowest amount, to \$471,005.14, the maximum amount, which was earned in 1883. As a result of the accumulated surplus, there is now to the credit of the Patent Office in the U. S. Treasury a total of \$7,295,052.46, an amount sufficient to purchase the site and erect a Patent Office which would be a credit to this great nation. In addition to this, there are some fifty million patent copies on hand in the United States Patent Office. They sell to the number of eight thousand per day at five cents each. These copies, therefore, repre-

sent an investment of \$2,500,000, so that the actual surplus of the Patent Office is close to \$10,000,000.

DETAILS OF THE BUSINESS.

One gets an idea of the vast amount of work done when some of the figures are considered. In 1913 there were received 68,117 applications for mechanical patents; 2,060 applications for design patents; 190 applications for the reissue of patents; 7,369 applications for registration of trade-marks; 1,002 applications for registration of labels and 221 applications for registration of prints.

During the year, 194,101 amendments were filed in applications for patents. The number of letters constituting the general correspondence of the Patent Office, indexed and filed, was 249,021.

In the work of the Drafting Division, 1,063 drawings were made for inventors, who paid \$4,110 therefor; 5,660 drawings already filed were corrected, for which the Office received \$5,762, and 22 tracings were made at a cost of \$23, a total of \$9,985.50 being received as fees for the work of the Drafting Division.

In the Assignment Division, 30,288 deeds containing 13,677,500 words transferring title to patents, etc. were recorded, for which the Patent Office made a charge of \$49,097.90. The number of deeds recorded in the year 1913 was larger by 1,172 than the number recorded in the year preceding.

Typewritten copies of records embodying 27,205,800 words were furnished, and for this work the Office received \$27,205.80. Inventors and attorneys were furnished with 52,404 photographic prints of drawings at fifteen cents each, and 7,104 photographic prints of larger size at twenty-five cents each.

About five years ago the work of printing the specifications of patents which bear numbers below 32,000 was undertaken, and at this time all patents above 1,670 have been printed. In the near future the Patent Office will be able to furnish a printed copy of the specification and drawing of all patents, commencing with No. 1 issued on July 28, 1836.

CONDITIONS IN THE OFFICE BUILDING.

The report of every Commissioner of Patents for the last twenty-five years has called attention to the crowded conditions existing in the Patent Office, and this condition is steadily growing worse. The patent copies kept for sale to the number of about forty-seven million, are scattered all over the Office, which necessarily increases the difficulty of getting them, besides subjecting them to the danger of fire. Under this subject the Commissioner said:

"Plans were heretofore prepared and laid before Congress on the basis of which an appropriation of \$220,000 was granted to build a two-story structure within the court. This, in the opinion of the Secretary of the Interior and the officers of this bureau, would greatly impair the rooms opening on the court. No steps have been taken to carry out these plans. New plans have been prepared providing for a two-story structure under the present level of the court, practically fireproof. It is estimated that there will be room therein to store all the patent copies now kept

for sale in the Office and all accumulations for the next fifteen years, and also that there will be storage room for such records as could not be replaced if destroyed. This structure could be built and equipped sufficiently for our present uses for the sum heretofore appropriated. The Congress is asked to grant authority to use the appropriation in accordance with these new plans. This structure will greatly relieve the congested condition of the Office."

The new plan is a vast improvement over the old one, and will undoubtedly accomplish the end sought by the Commissioner.

It will not, however, make any the less imperative the necessity to plan for a new Patent Office, a matter which was called to the attention of our readers in the last issue of the AGE, and which we have repeatedly mentioned in the past. The proposed underground structure would fulfil the present wants, but it would not relieve the conditions within the examining divisions and all through the Patent Office. Even if the new building were started now, it would take five years to complete, and for this reason the work should be begun at once.

PERSONNEL.

The Commissioner points out the fact that there are more assistant examiners receiving \$1500 a year than the sum total of the law examiners, primary examiners, and those assistant examiners receiving \$2400, and because of this disproportion of the number in the lower grades to those in the higher grades, promotions are slow. This has caused many ambitious young men to leave the Patent Office after they have been admitted to the bar. The Commissioner recommends:

"It is urged that the examining force be reorganized in the following particulars: First by restoring the grades of first, second, third and fourth assistant examiners; and, second, by increasing the number in the higher grades and reducing the number in the lower grades, so as to make them equal.

"The cost of such increase applied to the present force would be about \$23,000. I have, however, asked Congress to make the number in each of the four grades eighty-six, which would increase the number of assistant examiners by ten, and would increase the pay roll by about \$42,000."

There is no question that the reorganization would be helpful in stimulating promotion in the lower grades. Most of the examiners are college graduates, and it takes an assistant examiner several months, if not a year, before he becomes of value to the government. After he has been in the Office two or three years and has learned the details of the Office practice, he often resigns to engage in business for himself, or to become associated with some corporation. The Patent Office has lost a great many examiners in the lower grades, and if the plan proposed by the Commissioner would stop the resignations, it would certainly contribute materially to improving the personnel of the Patent Office.

BOARD OF EXAMINERS-IN-CHIEF.

The Commissioner recommends an increase of two members of the Board of Examiners-in-Chief. At present the Board consists of three members, two

of whom constitute a quorum. The Commissioner regards the increase necessary for three reasons:

"1. The number of cases appealed is so large that there is more work than three men can properly dispose of.

"2. Where, because of the necessary absence of one member, an appeal is heard by two members, in the event of a divided Board it is the uniform practice to set down cases for rehearing before the full Board. This increases the work of the Office and the cost to the applicant. With five Examiners-in-Chief, three of whom constituted a quorum, this difficulty would be obviated.

"3. The enforced absence of two members of the Board at the same time suspends the work of the Board. In the event of a serious and protracted illness this might result in great inconvenience. Moreover, as the members of the Board are appointed by the President, by and with the advice and consent of the Senate, the work of the Board might be crippled for a long period of time in the case of a death occurring while Congress was not in session."

We have in the past recommended increasing the membership of the Board as proposed by the Commissioner. While the Board of Examiners-in-Chief is catching up with the work, at the same time it is a well known fact that to accomplish this, the members of the Board have had to work after hours at great risk of impairing their health. We heartily endorse this recommendation and hope that Congress will see fit to grant the proposed increase.

SCIENTIFIC LIBRARY.

Under this heading the Commissioner says:

"Our valuable library is in present need of reorganization and enlargement. The collection of books, periodicals, and foreign patents is of the utmost value to the examining corps, inventors, manufacturers and attorneys interested in investigating the novelty of inventions, but the material is not and never has been in condition for ready reference. Much of it is practically unavailable. I have started the work of reclassifying and indexing with a view to meeting more nearly the peculiar needs of those who use the library. This library of about 75,000 volumes of scientific works and about 2,000,000 foreign patents, used as it is by people who are doing work which is almost identical with that of the examining corps, requires a librarian of special training and ability. General library training alone is not sufficient to enable one to understand the problems upon which those who use the library are working. The librarian should not only know library methods, but he should be trained in the art of searching. It is difficult to find any one with the necessary qualifications for the \$2,000 salary now provided by law. I believe, however, that by assigning a member of the examining corps and giving him an opportunity for instruction in library methods in the Library of Congress, the best results obtainable can be secured."

This is a most excellent recommendation, and if followed out will put at the head of the scientific library a skilled librarian who will be of great assistance to those who have to use the library. In the past the men assigned for work in the library have

been librarians, but nothing more. Instead of a \$2,000 salary, it should be not less than \$2,500.

OFFICIAL GAZETTE.

As is well known, this Patent Office publication contains each week certain of the claims and one of the drawings of every patent issued. It has been suggested that instead of following this plan there should be published a brief digest of the patents. This would be valuable to the examining corps, as well as to attorneys. The Commissioner says:

"It would be necessary, however, to employ a corps of digesters large enough and highly trained enough to digest intelligently more than a hundred patents a day. The expense of the work would be largely, if not entirely, saved by the decrease in the cost of printing, since the digests would not be so extensive as the claims now printed. But the changes suggested, if deemed advisable, could not be put into effect without legislation providing for the necessary increases in the force."

Thirty years ago the examiners were required to fill out a "brief" containing an epitomized statement of the subject-matter of the invention claimed in the patent. This "brief" was printed in the Gazette along with the claims and the drawing. It seems to us that this practice should be restored, and each examiner required to make a digest of the invention claimed in the patent. A special corps of digesters would have to study the patents and become familiar with them, whereas each examiner would be sufficiently familiar with the patents passed out by him to write a "brief" or digest of the patented invention in a few minutes. Of course, it would add to the burden of the work of the examiners, but we think the examiners could do this work in less time, and at a less expense to the government, and more accurately than a special corps of digesters, who would have to familiarize themselves with patents which they had never seen before. We heartily approve of the digest, but we believe that the work should be done in the examining divisions. This would necessitate an increase of the examiners, but this would be less of an undertaking than to inaugurate a special corps of digesters.

CONDITION OF THE WORK IN THE PATENT OFFICE.

The Commissioner calls attention to the fact that on February 1 of last year, of the applications pending in the Patent Office there were 26,195 which were awaiting official action. At the present time, January 31, 1914, there are 28,437 cases awaiting action, showing that the Office has fallen behind about 2,200 applications. The loss is accounted for by the Commissioner in this way:

"During the week when the examinations for promotions were held, there was a loss of 2,583 cases. As there are about 280,000 actions required in all cases pending each year, it will be seen that the loss in the number of applications during the examination week was about one half of a week's work. This loss can probably be avoided in the future, and if there should be no increase in the number of applications filed, the force can care for the current business as well as it is doing the work at the present

time. The more serious problem, however, is to bring the work of the Office up to date, so that there shall be no unreasonable delay in passing upon an application after it has been filed.

"The number of applications awaiting action in the different divisions is very different, and the time required to reach an application for action in different classes is very different. Generally speaking, those classes in which there is the greatest activity are those in which there is the greatest delay, and, it may be added, delays in such cases are of special hardship. Such delays can never be entirely avoided because sudden developments of activity in different classes occur, and the work in those classes falls seriously behind before new men can learn the particular art sufficiently for proper examination of the applications. We are endeavoring to make such improvement of conditions as is practicable with the present force. With the moderate increase in the force suggested heretofore, conditions could be greatly improved."

CLASSIFICATION.

As the Commissioner states, the function of the Patent Office is to ascertain and apply properly to an application for patent all existing patents and literature which have a legitimate bearing adverse to the claims presented. In order to accomplish this it is essential that the American and foreign patents and the literature of the arts collected in the scientific library, should be classified and indexed so as to enable the examiners rapidly to find all existing patents and other publications bearing upon the application being examined. The system of classification which grew up in the Patent Office prior to 1898 having been found to be inadequate, a force of classifiers has since that date been engaged in an attempt to work out a new and improved system of classification. Out of 1,085,000 patents, 517,000 have been assigned to their proper places under the new classification. Each assistant in the classification division is able on an average to classify about 2,000 patents a year. This means that with the present force it will require sixteen years to complete the classification. If the force should be doubled the classification could be completed in seven years. To complete the classification in three years would require an increase in the examining force of 75 men. This would involve an increase in the pay roll of about \$150,000 for classifiers, besides the necessary clerical assistance, which would probably increase it about \$40,000 more. However, when the task was once accomplished it would increase the value to the public of the work done by the Patent Office. The delay in the completion of the classification impairs the work of the Patent Office to a serious extent. The Commissioner closes his remarks under this head by stating:

"During the ensuing year it is my intention to study the problem of completing the classification, with a view of laying before Congress in my next report a definite plan, with estimates of the necessary expenses involved, and to urge that sufficient appropriation be made to complete the work as expeditiously as the Office space and other facilities available make possible."

This is indeed a herculean task, but we have confidence that the Com-

missioner will submit a plan which will be workable, practicable, and successful. For want of proper classification, many invalid patents have been issued by the Patent Office. The government owes it to inventors and the public to expedite the classification of the patents, in order that the mistakes made in the past may be avoided.

LEGISLATION.

Under the head of assignments, the Commissioner recommends a change in Section 4898 of the Revised Statutes, concerning the recording of assignments, approving the recommendation made by Commissioner Hall in his annual report for the year 1887, which was never acted upon by Congress.

He also recommends a change in Section 4934 of the Revised Statutes, which relates to the fee for recording assignments, by requiring that each additional patent, application, design, trade mark or invention enumerated therein should be assessed an additional charge of twenty-five cents. The Commissioner calls attention to a recent instance where eight writings were recorded, three of which contained 966 patents, applications and trade-marks, the legal fee for recording which was \$30. The actual time occupied by the clerical force in verifying and supplying missing data of these patents, digesting, indexing, recording and comparing was 172 hours, equivalent to the time of one clerk for twenty-four and four-sevenths days.

In the Assistant Division all assignments are indexed under the name of the inventor. In making a search, it is necessary to know at least the name of the applicant or inventor to run down a chain of title. It is frequently necessary or desired by attorneys and the general public to ascertain what patents are owned by a particular individual, firm or corporation. There is no reliable way at the present time in which such a search can be made. A consolidated assignee's index should be established and kept up to date in the Patent Office for this purpose. The Commissioner says:

"Requests are frequently made for such an authentic, verified and checked index from which a reliable search may be made to ascertain what patents are owned by given firms, corporations or individuals. To perform this service it is believed that three more index clerks will be required, in addition to those now employed in the Assignment Division, and for the indexing covering the past seventeen years, five or six additional clerks will probably be needed to bring up this arrearage within a reasonable time. I will therefore submit at an early date to Congress a request for authority to establish this index and a request for additional clerks for this purpose."

There is not an attorney practicing before the Patent Office who has not felt the need of an assignee's index, and the recommendation of the Commissioner is most timely. The index cannot be prepared too quickly to suit those who are required to examine daily the records of the Patent Office.

Another suggestion of the Commissioner which emphasizes his original ideas and shows that he is keenly

desirous to improve the work of the Patent Office, and to make matters more helpful to attorneys, is his recommendation that the law be amended to require that the Federal courts to the end of the year a copy of every decree granting or refusing an injunction in a case of infringement of a patent, and every final decree affecting the validity of a patent. As the Commissioner says:

"If such copies were filed in this Office and placed in the file of the patent, it would enable any one to determine the litigation in which this patent has been involved—a thing which is now practically impossible, since many of the decisions of the lower courts are not published."

By order No. 2079 it was required by the Commissioner that where the claims of a patent are affected by an adverse decision or concession of priority as a result of an interference, a notice as to the patented claims thus affected should be published in the Official Gazette after final decision in the proceedings. To bring this about, the docket clerk is required to furnish the chief of the Issue and Gazette Division with proper information for publication in each case so decided. As a result, hardly a week goes by in which there is not printed in the Gazette a reference to some patent where it has been held that the patentee was not the first inventor of the subject matter covered by certain claims of the patent. Now, if in addition to this, the clerks of the Federal courts should be required to notify the Patent Office along the line indicated by the Commissioner, it will be possible for any one examining the Patent Office records to ascertain whether or not a certain patent has been in litigation, and how or in what way the patent was passed upon by the courts.

The Commissioner also recommends that Sections 4888 and 4889 of the Revised Statutes be amended by eliminating the requirements that the signature of the inventor to the specification and claims, as well as the signature of the inventor or his attorney to the drawing, be attested by two witnesses. As the Commissioner says, the oath can readily be amended to contain an acknowledgment of the signature to the specification. The omission of the signatures of the witnesses would save a great deal of work in the Patent Office, not to speak of other objections, and it is believed that the recommendation of the Commissioner for the amendment of the two sections of the statute should be enacted into law.

There are other portions of the Commissioner's very able and interesting report bearing upon "Delayed Applications," and "Protection of Designs" which, for lack of space at this time, we will reserve for the future. Both of these subjects are worthy of special consideration.

To keep themselves posted in the progress of the arts in which they are interested, inventors and manufacturers should subscribe for the INVENTIVE AGE, which publishes a list of all patents issued each month. The low subscription price and the character of the publication entitle it to the support of all the inventors of the country.

A CLASSIFIED list of Patents issued during the month appears in each issue of the INVENTIVE AGE. This keeps inventors and manufacturers posted in the art in which they are most interested.—We will send, postpaid, to any address, printed copies of any U. S. patent, with specifications and drawings, upon receipt of 10 cents per copy.—Please give correct data in ordering.—Address,

THE INVENTIVE AGE PUBLISHING CO., 918 F St., N. W., Washington, D. C.

LIST OF PATENTS

Issued November 18, 1913.

MECHANICAL PATENTS.

(Continued from February Number)

Tire, Metallic vehicle C. Quintus
Tire protector, Auto. A. S. Standish
Tongs, Pipe J. T. Martin
Tongue supporter, Wagon. T. H. Shappy
Tongue, Wagon E. Riggs
Tool, Compound J. H. Holden
Tooth, Artificial E. B. Fewell
Top lift S. W. Winslow
Torch, Sealing B. T. Cornett
Torpedo, Self-propelling C. Lemale
Towel dispenser E. D. Miller
Toy A. E. Wilde
Toys, Accessory for J. C. Sproull
Tractor E. Bellemare
Tractor connection G. D. Munsing
Tractors, Adjustable tool hitch for H. W. Leavitt
Train derailer C. F. Flemming
Transmission system H. Nehlsen
Transmitting device E. F. Davenport
Trolley-collector shoe W. H. Miller
Trolley-pole support J. M. Andersen
Trolley wheel J. S. Randolph
Trombone C. J. Kiefer
Trousers belt A. K. Wander et al.
Truck, Car C. T. Westlake
Truck, Car W. F. Kiesel, Jr.
Truck, Car J. C. Whitridge et al.
Truck connection E. Stevens
Truck reel for conductor wires T. R. Jenkins, Jr.
Trunk, Wardrobe M. Cherry, Jr.
Tuberculosis and making said substance, Substance for treatment of. B. S. Paschall
Type-setting and distributing machine C. Collin
Type-writing machine (Reissue) J. A. Hagerstrom
Type-writing machine, Electrically-operated duplicate B. Kelley
Type-writing machines and the like, Silencing and anti-concussive support for. H. H. Yell
Typographical machines, Pi-stacking device for N. Dodge
Umbrella or parasol E. E. Tschudy
Vacuum cleaning apparatus T. J. and D. M. Winans
Valve A. A. Bowser
Valve D. Dennehy
Valve, Atomizing and mixing W. D. C. Wright
Valve, Float P. Mueller
Valve, Flush out A. Tosco et al.
Valve for explosion engines, Rotary. F. G. Schehr
Valve grinder C. C. Frank
Valve or strainer, Sand A. Hamill
Valve, Plug J. McCarthy
Valve-reversing gear, Steam-engine. W. Dalton
Valve structure for internal-combustion engines M. E. Moser
Valve, Vacuum O. S. Sleeper
Vapor apparatus, Mercury. J. C. Pole
Vapor apparatus, Mercury. F. G. Keyes
Vapor rectifier, Mercury J. W. Lewis
Vault, Burial A. D. Cook
Vehicle chock W. E. Perrine
Vehicle rim, Auxiliary raising and centering A. J. A. Bruete
Vehicle wheel H. W. Alden
Vehicle wheel F. S. Ellis
Vehicle wheel J. R. Gerard
Vehicle wheel, Pneumatic. J. U. Wells
Vessel emergency brake. S. S. Centofant
Vibration recorder W. E. McGraw
Wagon attachment, Farm. W. L. Kohler
Wagon dump (2 pats.) J. H. Gilman
Wagon jack G. L. Chitwood
Waistband for garments. A. G. Peine
Wall construction J. Conzelman
Wall construction, Double (2 pats.) J. E. Conzelman
Way-tying device G. W. Denison
Warships, Powder or explosive magazine for J. E. Starr
Warships, Powder or explosive magazine for C. C. Palmer
Warp stop-motion E. H. Ryon
Water-closet seat H. M. Hoelscher
Water-cooling apparatus L. L. Wilson
Water-escape or scupper G. W. Schodde
Water heater L. Ramsey
Water heater C. A. Haas
Water heater, Electric J. Polak
Water-heating apparatus. J. C. Jones et al.
Water purification W. T. Alliger et al.
Water tasteless and odorless, Rendering sterilized R. Gruter
Weighing machine, Automatic. E. G. Thomas
Welding apparatus, Electrical. A. Heany
Welding machine, Electric. J. C. Swanson et al.
Welding machine work table, Electric. R. C. Pierce
Well-casing plug R. C. Baker
Well digger's tool P. D. Bundy
Well strainer, Driven A. D. Cook
Wheel and method of and apparatus for making the same J. Slattery
Wheel brake, Automobile. R. H. White
Whiffletree hook and bar, Combined. M. E. Gross
Window screen M. G. Bunell
Window shield O. N. Baldwin
Window ventilator J. S. Kinkead
Wire-fabric machine J. W. Sommer

Wire-mesh fabric E. Fuller
Wire stretcher I. W. Holland
Wire stretcher G. A. Cole
Wrapping machine H. J. Kempf
Wrench J. E. Cartmull

Issued November 25, 1913.

MECHANICAL PATENTS

Acetylene generator E. Adamson
Acid such as nitric acid by means of a drying agent, Concentrating E. Collett
Adjustable chair J. F. Walton
Adjustable table F. Hazenzahl
Advertising kiosk S. W. Porteous
Advertising-order record. E. B. Wilson et al.
Air-blast heater E. Hohmann
Air-brake systems, Device for heating. J. S. Shoemaker
Air-feeding attachment F. N. Cooke
Alumina, Purifying H. F. Chappell
Alumina, Purifying. H. F. Chappell et al.
Aluminum-bearing materials, Treatment of J. I. P. Bassett
Amalgamator H. I. Anderson
Ammonia and other compounds containing nitrogen and hydrogen, Synthetically preparing F. Hlavati
Amusement device J. M. West
Antiskidding devices, Tread-section for. H. D. Weed
Apparel lock, Wearing A. Lissner
Armor plates and other steel articles, Manufacture of J. L. Benthall
Asbestos handle R. B. Best
Automobile H. A. Baker
Automobile folding chair. W. H. Douglas
Automobile radiator J. W. Bowerbank
Automobile-radiator wind shield. A. Holland
Automobile shock absorber. W. H. Cook
Automobile with pivot gun. G. Hayn et al.
Awning W. Sullivan
Axle bearing, Locomotive. W. C. Stephenson
Bag closure and carrier E. M. Wallace
Bale-band-applying device. J. H. Marion
Baling press J. N. Wood
Ball-and-socket joint A. Zahringier
Bath tub J. J. Lawler
Battery support R. M. Lloyd
Bean-picking machine. C. E. Smith
Bean sorter W. S. Foster
Bearing J. A. Wintroath
Bearing, Ball H. Hess
Bearing for turn tables, Roller. P. A. Cuenot
Bed, Cabinet or wall. W. R. Nees
Bed-rail fastener J. S. Hendricks
Beds, Bed-post for brass or iron. M. Sobel
Bell, Door M. Zimmerman
Bell, Electric A. Jacobsen
Belt or buckle support M. Plotke
Belt, Shirt waist I. C. Woodward
Bicycles and the like, Propelling mechanism for H. J. Sherrill
Binder, Loose-leaf W. P. Pitt
Binder, Temporary C. Dom
Blast furnace, Hot C. E. Norman
Boat plug W. J. Adams
Boat, Ship's P. A. Stofel
Boats, Track for motor. E. Durand
Boiler-flue cleaner J. T. Lemon
Boilers, Water storing and heating apparatus for D. L. Winters
Book holder or support R. Krumming
Boring machine D. P. Jordan
Boring stem J. A. Wintroath
Bottle carrier for soaking machines. J. W. Dawson
Bottle, Non-refillable W. J. Beisel
Bottle, Refillable L. J. Greclius
Boxes, Manufacture of. M. D. Knowlton
Bracelet C. M. Levy
Bridge pier and means for and method of constructing the same, Deep-water. A. C. Rush
Brooder, Poultry C. Delay
Brush holder, Tooth J. H. Trayne
Bucket, Self-dumping. R. W. Catching
Bulletin board, Changeable. A. Spielmann
Bundling machine J. A. Koller
Burner F. C. Chaddborn
Button, Cuff C. L. Webster
Button, Parchment. G. Sachsenroder
Cabinet, Metallic kitchen L. F. and J. McClerman
Cables, Support for conduit. E. H. Smith
Calculator A. A. Mellicke
Call apparatus, Search. A. F. Boardman
Camera plate holder W. J. Thompson
Can J. F. Montgomery
Can-filling apparatus F. L. Jefferies et al.
Cannery exhaust box. J. E. Wright et al.
Car body, Convertible. L. W. Ray
Car brake R. McClaskey
Car coupling G. A. Hermanson
Car door, Dump. R. W. Burnett
Car-door frame. J. W. Rumsey et al.
Car doors, Combined handle and lock for. J. W. Rumsey et al.
Car-lighting system W. Cooper
Car-lighting system W. Cooper
Car-roof construction C. W. Renner
Car side-door frame, Railway. W. J. Knox
Car-side tightener. W. E. Fowler, Sr.
Car step J. R. Kunzelman
Car step, Folding P. J. Strimble
Car-stopping device, Automatic J. S. Strickland et al.
Cars, Door or gate-operating mechanism for the platforms of E. M. Moller
Carburetor J. G. Burchartz
Carding machine (2 pats.) L. W. Campbell
Carpet sweeper G. B. Deacon
Carrier J. S. Spirewki, Jr.
Carry iron, Car draw bar. C. L. Bundy et al.

Cart, Street-cleaning. T. B. Mason
Carton A. B. Carey
Cartridge cases, Machine for canneluring, trimmings and gauging. H. D. Hodge
Cash register E. E. Patten
Caster wheel, Tractor G. D. Munsing
Cellulose composition G. Koller
Channeling machine H. H. Mercer
Checkrein fastener or holder. J. S. Cusson
Chiropractic table F. M. Naysmith
Chuck H. B. Shreve
Chuck C. C. Hansen
Chuck, Magnetic. L. S. Downes et al.
Churn T. S. Rigdon
Chute, Dust W. H. A. R. Wedemeyer
Cigar machine O. Preissler et al.
Circuit breaker P. C. Hewitt
Circuit interrupter P. H. Thomas
Circulating and mixing device. J. J. Fearon
Cleaning device J. H. Simpson
Clevis H. B. Deakins
Clock G. R. Nordling
Closure-fastening device. W. R. Stevens
Clothes pounder. L. R. Spohrer
Clutch, Friction M. C. Johnson
Coal screen, Rotary F. S. Converse
Coat closure J. S. Snyder
Cock and operating mechanism therefor. E. B. Dunkel et al.
Coffee extract, Making J. T. Davis
Coffee or tea pot F. Bohman
Collapsible stand E. M. Atkinson
Collar H. C. Fletcher
Composing machine, Typographic. J. B. S. Booth
Composing machine, Typographic. F. H. Pierpont
Concentrating jig M. C. Seagrave
Concrete piling O. Stange
Container closure K. Kiefer
Continuous kiln F. D. Shaw
Cooker, Steam W. H. Cook
Cooking machine, Ice-cream-cone. J. P. Grosset
Copper, Hardening J. A. Mcarty
Corset fastener A. Rockowitz
Cotton-chopper machine J. R. Penn
Crank arm E. B. Craft
Crate, Collapsible shipping. C. B. Guthrie
Crate, Folding N. A. Clute
Crib and coop, Convertible. E. M. Trimble
Cream remover W. L. Ellingwood
Cue shave P. Balzano
Cuff, Fold H. Friedmann
Cultivating machine, Cotton R. T. and W. R. Simmons
Cultivator N. McAslan
Cultivator E. W. Green
Cultivator harrow attachment. H. E. Lancaster
Current motor, Alternate V. A. Fynn
Curtain pole A. Nitka
Cushioned flat and filler, Combination W. Merker
Cuspidor F. A. McGuire
Cutters, Adjusting rotary. S. MacKay
Cutting block E. L. Hurd
Damper L. L. Brown et al.
Dampener, Automatic furnace. A. W. Arnold
Diaper G. F. Earnshaw
Disk drill H. E. Lohman
Dispensing can C. A. Mason
Dispensing can R. A. Mowrey
Display lid P. A. Becker
Door-controlling means. W. K. Henry
Door for silos D. A. Sahnave
Door hanger T. Lloyd
Door hanger track, Barn. G. W. Yentzer
Door lock G. Kiehl
Draft equalizer J. A. Schwarzfischer
Drain trap, Floor J. J. Donovan
Dress J. A. Herman
Drill M. Sidon
Drinking device S. W. Greene
Drinking fountain, Sanitary A. R. Roethlisberger
Drying apparatus F. F. W. Stieler
Drying plant G. Falchi
Dye and making same, Disazo. G. Kalischer
Electric heater I. F. Talbot
Electric ignition systems, Adjustable timing apparatus for A. Zahringier
Electric-light cord adjuster. P. L. Pritchett
Electric lighting P. C. Hewitt
Electric-lighting apparatus, Starting P. C. Hewitt
Electric machine, Dynamo. W. Linke et al.
Electric machines, Brush holder for dynamo J. H. Holmes
Electric machines, Dynamic control for. A. E. Hogrebe et al.
Electrical production of light. P. C. Hewitt
Electrodes, Making storage battery H. C. Hubbell
Electroplating pipes, Apparatus for (2 pats.) D. H. Murphy
Engine F. W. Ruggles
Engine E. Rathbun
Engine starter, Electrical. S. W. Rushmore
Engine vaporizer and igniter, Internal-combustion W. O. Platt et al.
Engines, Ignition apparatus for hydrocarbon R. Huff
Engraving machine C. A. Ker
Envelope fastener. R. V. Hirschmann
Evaporating apparatus. W. A. Seltmann
Expansion joint J. T. Kelly
Explosive engine B. B. Door
Extension table H. W. Bradner
Fats and fatty oils into glycerine and fatty acids, Hydrolyzing G. Petroff
Feed, Four-motion C. S. Batdorf
Felly, Spring F. M. Prather
Fence post, Composition. R. B. Bennett
Fertilizer distributor E. J. Pearson
Filing case for cards and the like. L. A. Lebowich
Filling apparatus F. L. Jefferies et al.

Filter, Pump R. E. Miles
Finger ring, Expandable. L. M. Higham
Finish remover H. A. Gardner
Fire alarm system, Electric. J. G. Schluchter
Fireplace, Portable gas log. Q. S. Backus
Fireproof window construction. W. R. Kinnear
Floor-supporting structure of theaters and the like F. Meister
Flour, Blowing J. Wallos
Fluid-operated device, Automatic-return G. F. Steedman
Fluid-pressure-regulating gauge G. L. Konnelly
Flushing device C. Hopewell
Flushing tank G. H. Tarleton
Flying machine J. Menz et al.
Folding box C. H. Seegmiller
Freight-handling apparatus H. Sawyer
Fruit-cutting and pitting machine. A. L. Morton
Fuel in paper bags, Machine for packing A. Armbruster
Fuel mixer, Gaseous. J. T. Hazolton
Furnaces, Apparatus for automatically regulating the draft in boiler. G. de Grahl
Fuse-making machine. L. and J. Schulman
Fuse-setting device W. Schwartz
Fuse-setting machine W. Schwartz
Fuses, Delayed-action device for impact. K. Wieser
Garment, Infant's G. G. Painter
Garment support J. W. Flagg
Gas cleaner A. Ernest
Gas generator, Acetylene. E. M. Rosenbluth
Gas generator, Acetylene. C. W. Holm
Gas-supply-controlling means. L. A. Korb
Gate-opening device J. Spence
Gearing J. D. Grafing
Gearing, Transmission. W. D. Arnsburger
Gearing, Transmission. J. E. Davis et al.
Gearing, Variable-speed R. H. Gerard
Gem setting H. C. Schuetz
Glove H. G. Hartmann
Glove shaping and setting device. A. B. Tozer
Grader, Road M. J. Phillips
Grain separator O. L. Kleven
Graphophone, Automatic announcement T. H. Macdonald
Grate W. R. Jeavons et al.
Grinding machine A. L. Bausman
Gripper mechanism A. Bates
Guard J. C. Wells
Gun J. A. Guarino
Gun, Air A. Wissler
Gun carriage G. Wienholtz
Gun carriage, Wheeled. G. Wienholtz
Gun carriages, Spade-fastening for wheeled O. Lauber et al.
Gun-elevating and training gears, Driving device for H. Strauss
Gun-elevating mechanism. F. Bominghaus
Gun-sighting device R. Schurmann
Harness hook F. Parrish
Harrow O. Erikson
Harvester, Cotton L. L. Upshaw
Hasp fastener R. Bruce
Hat pin W. O. Yancy et al.
Hat press J. M. Enyart
Heater J. J. Plucker
Heating apparatus N. B. Wales
Heating system, Steam. T. W. Cooper
Heel lifts, heels, &c., Machine for pressing T. Bostock
Hinge for automobile hoods. H. G. Baum
Hog-scalding apparatus. C. R. Hronish
Horse detacher R. R. Morgan et al.
Horseshoe N. B. Quick
Horseshoe attachment. J. R. Morgenstein et al.
Hot-air furnace J. B. Huckle et al.
Hydrant and reel G. A. Owen
Ice-making and refrigerating machinery. T. Shipley
Ice-making and refrigerating machines, Condenser for T. Shipley
Ice-making machine W. Graaff
Illusion device L. McCormick
Inking roller and making same J. H. Hennessey
Instep support J. W. Arrowsmith
Internal-combustion engine. J. McKennie
Internal-combustion engine. A. C. Peterson
Internal-combustion engine. J. Willoughby
Internal-combustion engine (2 pats.) F. D. Calkins et al.
Iron and steel to form a permanent black finish thereon, Treatment of. W. R. Swan
Ironing table W. Hosey
Irrigating apparatus G. S. Williamson
Journal boxes, Grease holder for. L. K. Smith
Keyhole guard A. Lissner
Knitting machines, Yarn-feed traverse mechanism for H. Janssen et al.
Knockdown box J. A. Scott
Lamp W. F. Hudgins
Lamp, Electric gas or vapor P. C. Hewitt et al.
Lamp, Filament M. Sidon
Lamp for automobiles, Dirigible W. B. Dievendorf
Lamp, Marker A. G. Karl
Lamp socket, Incandescent electric. E. A. Olley
Lamp support K. J. Ohlson
Lamp support, Vehicle. J. W. Spangenberg
Lamp, Vapor electric O. O. Kruh
Lamps, Manufacture of incandescent bodies of metallic tungsten or molybdenum for electric incandescent A. Lederer
Lamps, Outfit for alternating-current vapor P. H. Thomas
Lasting wiper, End W. A. Stubbs
Lathe attachment R. Jantsch
Lawn sprinkler, Automatic. E. L. Nicholson
Lead, Producing white E. Euston
Leather-skiving machine. A. M. Alexander
Lever brace G. A. Cutter
Lifting jack J. B. Smythe
Lifting jack W. Flett

Line-casting machine.....A. W. F. Guest
 Linoleum, lincrusta, or like material.....
 Liquid cooler.....A. C. Schwartz
 Loading device.....G. R. Long et al.
 Lobster trap.....J. H. Piercy
 Lock.....A. A. Noyes
 Logic machine.....R. J. Keppel
 Loom.....C. P. R. Macaulay
 Loom harness-stop.....S. S. Jackson
 Mail-marking machine.....C. Thibault et al.
 Marking device.....A. Ielfield
 Marking-machine inking mechanism.....H. J. Potter
 Measure, Linear.....C. W. Canine
 Measuring device, Automatic.....L. A. Wesson
 Measuring device, Liquid.....F. L. Metzger
 Measuring device, Tailor's.....P. H. Smith
 Medicine capsule.....M. Goldberger
 Mercury compounds and producing same.....M. Pollock
 Metals, Treating.....A. B. Davis
 Mine-hoist recorder.....J. A. McLarty
 Mining machine.....O. W. Ingels
 Minnow, Artificial.....H. A. Kuhn
 Mirror, Clamp mouth.....J. C. Simms
 Molding machine.....I. G. Jirka
 Molds, Means for holding inserts in place.....
 in.....J. O. Harris
 Mole trap.....H. H. Beers
 Mop wringer.....J. H. and J. B. Taylor
 Mortising tool.....E. Poortinga
 Motor-control system.....J. Eaton
 Motor controller.....T. E. Barnum
 Motor-stopping device, Automatic.....
 J. L. Blockburger
 Motor wheel, Electric.....K. Knudsen
 Music-turning device, Sheet.....L. B. Chambers
 Nail extractor.....G. R. Dibert
 Neckwear.....W. E. Webb, Jr.
 Nut lock.....J. W. Nippert
 Nut lock.....W. I. Pride et al.
 Nut-locking device.....J. W. Brundage
 Nutmeg container and grater.....E. A. Parker
 Oils and fats, Bleaching and thickening.....
 O. Scherible
 Orchard heater.....J. L. Hamilton
 Ordnance-sighting apparatus.....
 A. T. Dawson et al.
 Ore-reducing process.....J. A. McLarty
 Ore separator.....A. M. Plumb
 Ores, Roasting fine.....W. Bnddeus
 Package holder.....F. Johanyak
 Package tier.....G. A. Roberts
 Packing expander.....G. P. De Wein
 Packing ring, Metal.....G. Huhn
 Packing rings or the like, Tool for remov-
 ing or inserting piston.....J. Komanecek
 Paint and varnish remover.....H. B. Chalmers
 Panic bolt.....J. M. Marty
 Pantograph.....B. Anderson
 Paper-box-corner-staying machine.....
 E. H. Taylor
 Paper holder, Toilet.....L. Ullery
 Penholder.....H. J. Roth
 Photographic silver pictures, Toning.....
 R. Fischer
 Piano.....H. Mather
 Piano action.....F. Peck
 Piano rim, Grand.....J. T. Mayer
 Picture machines, Attachment for moving.....
 F. H. Frude
 Piling, Iron.....F. Wieder
 Pinacones, Producing.....A. Jonas et al.
 Pipe-bending machine.....C. C. Rutledge
 Pipe support (2 pats.).....W. B. Gray
 Pipes or the like, Hood for mouthpieces.....
 H. E. Hagmueller
 Planter, Corn.....E. J. Ogden
 Platform indicator.....C. J. Kintner
 Plow.....R. D. and C. E. Loika
 Plow.....E. B. James
 Plow.....J. G. Brock
 Plow.....W. F. Fielder
 Plow, Rolling-drum.....W. B. Prugh
 Plow, Subsoil.....C. W. Hicks
 Pockets, Catch for.....C. Holmcrans et al.
 Popcorn-crisp machine.....W. M. Brown
 Power-generating systems, Ignition appara-
 tus for.....G. C. Davison
 Pressure-regulating means.....J. L. Perkins
 Pressure rolls, Adjusting means for.....
 M. A. Pearson
 Printing press.....W. Scott
 Printing presses, Means for coupling feed-
 ers or the like to.....W. H. Smith
 Projectile, Apparatus for automatically in-
 dicating the time of flight of.....E. Muller
 Projectiles, Illuminating body for illumin-
 ating.....F. Ziegenfuss
 Proof press.....A. L. Blue
 Pull-socket switch.....F. Barr
 Pulverizer, Disk.....O. Christianson
 Pump.....F. A. Garvey
 Pump and motor, Rotary.....J. M. Wilson
 Pump, Rotary (3 pats.).....J. R. Kinney
 Pumps, Bearing system for rotary well.....
 J. A. Wintroath
 Pumping apparatus.....P. A. Little
 Pumping apparatus, Liquid.....T. M. Chance
 Punch and setting machine, Combined.....
 E. B. Stimpson
 Purifying and sterilizing liquid, Method of.....
 G. W. Swinburne
 Purifying sewage and the like, Apparatus.....
 P. Bunzel
 Rabbit trap.....J. A. Sauter
 Rail chair.....J. R. Jennings
 Rail joint.....A. Nitka
 Rail joint.....C. Heim et al.
 Rail joint.....D. Yoakam
 Rail joint.....J. E. Bamber
 Railway spliee with fish plates.....
 O. A. Kunert et al.
 Railway-switch mechanism.....M. L. Shepherd
 Railway tie.....F. M. Crossley
 Railway tie and fastener.....J. R. Watson et al.
 Reamer, Expansion.....L. Baum
 Refrigerating apparatus.....
 H. H. Southworth et al.
 Regenerative furnace.....N. F. Egler
 Rein support.....M. E. Huebner
 Retort furnace, Electric.....J. Bally
 Rifle.....F. J. Cooper
 Riveting machine.....N. Marshall
 Roasting furnace.....E. J. Fowler
 Rock drill, Pneumatic.....E. Altenhoff

Rocker, Collapsible shoo-fly.....A. D. Converse
 Rolling flanged sections.....G. H. Barbour
 Rope coupling.....S. E. Reagles
 Rope terminal.....L. H. Randolph
 Rotary cutter.....H. J. Parker
 Rotary engine.....G. E. Callaway
 Rotary motor.....A. J. Krouse
 Rotors, Resistance ring of.....J. M. Barr
 Rubber, Regenerating vulcanized.....C. P. Bary
 Sand and gravel cleaner.....W. C. Mereer
 Sash-cord fastener.....J. Asher
 Sash for hotbeds and other purposes.....
 W. S. Bodley
 Sash hanging and operating mechanism.....
 J. Kahn
 Saw tooth and locking mechanism therefor.....
 A. Elson
 Scale, Weighing and adding.....H. Hathaway
 Screen.....C. V. Nilsson
 Screens, Machine for making water and
 oil.....R. F. Kreiter et al.
 Seal bolt.....P. M. Ciernia
 Seal, Vacuum-tight.....F. G. Keyes
 Seaming machine, Tin can.....A. Jenson
 Seed huller, Cotton.....R. W. McLean
 Seed rack.....M. E. Reilly
 Sewage disposal.....L. T. Leet
 Sewing machine (2 pats.).....C. T. E. Gould
 Sewing machine tuck marker.....P. Diehl
 Sewing machine, Welt.....F. H. Perry
 Shade bracket.....W. H. Drake
 Shaft, Adjustable.....A. M. Kuhl
 Shaft, Vehicle.....O. Jahn
 Shaker for chocolate and the like.....J. Knight
 Shaper, Disk-harrow.....H. Lammon
 Sheet material, Machine for cutting and
 creasing.....C. N. Colpitts
 Sheet-metal box (2 pats.).....E. Norton
 Sheet-separating machine.....W. R. Kinnear
 Ship-bottom cleaner, Electrolytic (Reissue).....
 G. W. Frazier
 Shipping blanks.....W. Bannerman
 Shoe.....D. Austin
 Shoe attachment, Low-cut.....W. E. Bunker
 Shoe fastener.....A. A. Siman
 Shoe form.....J. A. Niles
 Shoe-polishing box.....A. I. Rooney
 Show case or clothing cabinet, Automatic.....
 C. Yorgor
 Twine holder.....G. R. Cornwall
 Type-casting and composing machines, Cen-
 tering or positioning mechanism for.....
 J. S. Bancroft et al.
 Type-casting machine.....F. Sally
 Type-setting and distributing machine.....
 H. C. Osborn
 Type-writer.....A. Van Loy
 Type-writers, Pneumatic printing mechan-
 ism for.....M. Soblik
 Type-writing machine.....C. H. Vogel
 Typewriting machine.....H. V. Fengler et al.
 Typewriting machine.....C. H. Vogel
 Typographical machine.....P. T. Dodge
 Typographical machine.....D. S. Kennedy
 Uncoupling device.....C. A. Carscadin et al.
 Vacuum package and means for sealing
 same.....G. Staunton
 Vacuum separating trap.....W. F. Coakley et al.
 Valve and governor, Combined.....
 S. R. Adams et al.
 Valve, Engine.....T. B. Farrington
 Valve, Engineer's.....B. S. Aikman
 Valve for gas burners.....E. S. Allen
 Valve for locomotives, Drifting.....
 R. Rennie et al.
 Valve for steam-heated apparatus and the
 like, Blow-off.....F. Raffensdorfer
 Valve, Gas.....E. W. Havers
 Valve gear for blowing engines, Discharge.....
 C. G. Sprado
 Vapor apparatus, Electric.....C. O. Bastian
 Vehicle advancing by means of artificial
 legs.....A. Ehrlich
 Vehicle, Dumping.....W. B. and P. S. Longest
 Vehicle fender.....J. Mascari
 Vehicle transmission and steering mechan-
 ism, Motor driven.....H. H. Schieler
 Vehicle wheel.....R. K. Gratiy
 Vehicles, Fifth wheel connection for.....
 M. Davis
 Vice.....J. Sayer et al.
 Wagon jack.....B. Schrader
 Wagons, Bumper for log.....W. F. Jones
 Warp-tying machine.....H. D. Colman
 Washing machines and wringers, Gearing
 device for.....W. J. Schoonover
 Washing machines, Mechanical movement
 for.....W. H. Voss
 Washing machines, Mechanical movement
 for.....S. T. White
 Water closet seat actuating mechanism.....
 A. L. Waltersperger
 Water feeding attachment.....D. F. Leone
 Water heater.....J. O. Van Busker et al.
 Water heating device.....H. K. Bealer
 Waterproof surfacing composition, Liquid.....
 G. W. Magnus
 Weed puller.....C. N. Walton
 Weighing device, Automatic.....J. Grimes
 Weighing device, Automatic.....A. A. Pile
 Well boring apparatus.....R. H. Canfield
 Well mechanism.....J. A. Wintroath
 Well mechanism (2 pats.).....
 P. D. Bowler et al.
 Well sinking apparatus (2 pats.).....
 M. T. Chapman
 Well tubing, Automatic stop for.....G. Ochs
 Wheel.....C. W. Bell et al.
 Whip, rein, and lap-robe lock for vehicles.....
 O. W. Wilde
 Window.....H. Veiser
 Wire bending machine.....W. W. Shirley
 Wire fabric, Corrugated link for.....
 G. B. Smith
 Wire stretcher.....F. Gibson
 Wool and other textile fibers, Mechanism
 for drawing rovings of.....F. Casablancas
 Wrapping and unwrapping machine.....
 C. Kuentzel
 Shuttle.....G. O. Bouehard
 Shuttle.....J. B. and E. H. Daudelin
 Sideral sphere.....L. W. Noyes
 Sign and indicator.....P. Ficcio
 Sign, Changeable.....B. Fried
 Sign fastening.....G. Tennie
 Sign receptacle, Electrical.....E. H. Freeman

Sign structure, Sill.....J. Chapin
 Signal apparatus, Light.....G. Dalen
 Slabs, Apparatus for forming metal-rein-
 forced composite.....G. H. Barbour
 Slicer, Meat.....L. Linkiewicz
 Smoke consumer.....D. H. Cowherd
 Snow plow.....L. Sims
 Spark arrester.....W. C. Yocmans
 Spark plug.....J. J. Meyer
 Spinning flax, hemp, jute and other fibers.....
 G. Shaw
 Spool holder or case.....O. J. Israel
 Spout for tin or paper receptable, Pour-
 ing.....C. F. Blanke
 Sprayer.....W. A. Pungs
 Spraying device, Tree.....H. H. Hardie
 Spring construction.....S. M. Raftery
 Spring wheel.....J. D. Collier
 Stage illusion.....J. Micklejohn
 Stalk cutter.....W. A. Martin
 Stamp-affixing machine.....C. C. Lapphear
 Stamp attacher, Automatic postage.....
 J. M. Stevens et al.
 Stamping apparatus, Signaling device for
 letter.....H. Angerstein
 Steel, Forming machined shapes of man-
 ganese.....W. S. Potter
 Sterilizing liquids by means of ultra-violet
 rays, Apparatus for.....O. Linker
 Stirrup.....D. P. Van Zante
 Stirrup, Safety.....W. P. Sarrett et al.
 Stove-oven bottom, Gas.....H. C. Maul
 Strainer, Pulp.....G. S. Witham, Sr.
 Street scraper.....G. W. Anthony
 Submerged bodies, Apparatus for raising.....
 G. Lesourd
 Suction cleaner.....J. H. Templin
 Suction-producing device.....C. J. Harvey
 Supporting device.....R. V. Toutjian
 Suspender end.....O. G. Rust
 Suspenders.....L. P. Mason
 Tag, Remnant.....C. E. Mitchem
 Tambour-frame operating mechanism.....
 J. J. Knecht
 Tamping machine.....J. E. Joiner
 Tank closure.....H. D. Oppenheimer
 Tank heater, Stock.....T. Finnegan
 Teeth, Device for use in connection with the
 articulation of artificial.....G. W. Clapp et al.
 Telephone, Answering and recording.....
 C. J. Gustafson
 Telephone mouthpieces, Automatic disinfect-
 ant holder for.....A. B. Buckland
 Telephone switching system.....W. Aitken
 Tent.....F. L. Gould
 Thermo-electric couple.....F. Weintraub
 Thermometer, Incubator.....C. Roberts
 Time switch, Electric.....G. E. Morden et al.
 Tire.....J. J. Fields
 Tire, Pneumatic.....R. Rondeau
 Tire shrinker.....I. I. Scott
 Tire valve dust cap.....J. Lynn
 Tide valve stem and pressure gauge, Com-
 bination.....D. C. Hathaway
 Tire, Vehicle.....J. T. Clark
 Tobacco elevator, Green.....S. Schmidt
 Tongue hounds, Wagon.....W. J. McWilliams
 Tool, Fluid-pressure-operated.....C. H. Peck
 Trace carrier.....M. H. Osborn
 Traction device.....B. Lindemann
 Transmission mechanism.....H. Devlin
 Traveling bag.....M. Chodorkow et al.
 Trick box, Collapsible.....S. Hechinger
 Trolley guard.....M. Guariglia
 Truck brake, Railway.....G. Napier et al.
 Truck, Car (2 pats.).....C. T. Westlake
 Truck, Electric railway.....W. L. Boyer
 Tubes from fibrous material, Machine for
 making.....J. E. Lappen

Issued December 2, 1913.

MECHANICAL PATENTS.

Adding machine.....W. G. Skinner
 Adding machine crank driving mechanism.....
 H. Kuntzler
 Adding machine flexible draft connection.....
 H. Kuntzler
 Addressing machine.....J. S. Duncan
 Adhesive plaster spool.....P. S. Bauer
 Advertising apparatus.....F. F. Heissenbittel
 Air and other gas compressors, Apparatus
 for controlling.....G. E. Huetelmaier
 Air compressor.....E. Hill
 Air pipe dust-catcher.....J. W. Young
 Air tight box.....P. S. Bauer
 Airship.....B. F. Stoner
 Alkali metals, Producing.....J. E. Bucher
 Aluminum alloy (2 pats.).....W. N. Naylor et al.
 Anchor, Earth.....J. Blackburn
 Annealing box.....J. A. Lawrence
 Anvil base.....W. Stake
 Armor chain.....P. Ganthier
 Automobile attachment.....R. H. Prestien
 Automobile jack.....C. A. Hart
 Automobile lifting and turning means.....
 M. Stewart
 Bag lock.....C. A. Launderholm
 Ball joint.....L. W. Anderson
 Banjo, drum, or similar musical instrument.....
 C. Habernmann
 Bath mat.....W. E. Allen
 Battleship (3 pats.).....H. M. Silveira
 Beams, &c., Coupling for roller.....
 W. H. Goldsmith, Jr.
 Bearing, Ball.....W. Sparks
 Bearing construction, Ball.....A. S. Reed
 Bearing with roll separators, Roller.....
 C. S. Lockwood
 Bearings, Ball retainer for ball.....W. Sparks
 Bed and valise, Combined camp.....E. C. Wren
 Bed, Folding sofa.....G. M. Kim
 Beehive.....N. Matthews
 Belt, Driving.....A. and M. A. Hendry
 Boiler.....R. D. Reed
 Boiler furnace, Steam.....J. Reagan
 Bolt and nut lock.....A. Sieminski
 Boring device.....D. MacGregor
 Bottle.....B. M. Morton
 Bottle capping machines, Capping head for.....
 J. and J. A. Butkus
 Bottle caps, Machine for making.....
 J. C. Lawson
 Bottle closure.....H. V. Pick

Bottle holder, Milk.....J. J. L.
 Bottle, Non-refillable.....A. C. W.
 Bottle, Non-refillable.....J. Waring
 Bottle, Nursing.....L. Mambour
 Bottle, Poison.....A. L. Larsen
 Bottle stopper.....E. M. De Valdes
 Bottles, Manufacture of globular glass.....
 A. Scheller
 Bowling alley pin setter.....E. S. Schossberg
 Bowling ball.....C. Seessle
 Bowling ball.....A. Sondheimer
 Brake and attachment.....W. L. Granger
 Brake beam.....W. E. Fowler, Jr.
 Brush control.....M. Vandel
 Building block.....R. W. Rottis
 Bunion rectifier.....W. M. Scholl
 Burner, Hydrocarbon.....E. A. Whitten
 Button attaching machines, Button and staple
 feeding mechanism for.....F. R. White
 Button attaching machines, Button feeding
 mechanism for bar.....F. R. White
 Buttonhole finishing machine.....G. S. Hill
 Cabinet, Bath.....M. Beadle
 Cable grip.....W. J. Parker et al.
 Cable hanger.....J. A. Walsh
 Car.....A. J. Stevens et al.
 Cap, Uniform.....J. J. Kohler
 Car.....A. J. Stevens et al.
 Car attachment, Side.....J. A. Potash
 Car, Dumping.....R. W. Davies
 Car frame construction.....H. M. Pflager
 Car lubricator, Mine.....J. H. Thomas
 Car roof.....T. N. Russell
 Car sreet, Motor.....J. F. and E. N. Kennedy
 Car-seal lock.....E. Tyden
 Car underframe.....W. A. Stearns
 Car underframe.....V. M. Summa
 Carbureter.....C. C. B. Morris
 Carbureter.....O. E. Monosmith
 Carbureter.....A. R. Pribil
 Card case.....O. W. Tollstam
 Carding engine feeding mechanism.....
 D. C. Fisher
 Carpet sweeper pump mechanism.....
 J. T. Johnson
 Carriage top.....L. S. Henderson
 Casein preparations, Producing.....
 A. A. Dunham
 Cash register.....J. P. Cleal
 Cash register.....E. E. Patten
 Chandelier (2 pats.).....W. Adams
 Check-disk-issuing machine.....E. March
 Churn.....J. W. Barr
 Circuit closer, Thermostatic.....J. Hartley
 Cisterns, Form for concrete.....G. A. Watkins
 Clamping device.....C. J. Landin
 Clasp.....O. L. Gammelgaard
 Clock, Electric.....F. Brunko
 Closure-applying mechanism.....N. M. La Porte
 Cloth-cutting machines, Safety device for
 circular-knife.....D. Perlman
 Coal, Apparatus for eoking.....H. L. Doherty
 Cock, Gage.....W. A. Dittmer
 Cock, Telescopie bib.....E. A. Fountain
 Coffee, &c., Refining machine for.....
 H. L. Johnston
 Coin counting machine.....H. K. Smith
 Collar supporter.....C. Poulain
 Commutator-motor.....H. K. Schrage
 Composing machine, Typographical.....
 D. S. Kennedy
 Composing machine, Typographical.....
 G. P. Kingsbury
 Concentrator.....J. S. Finlay
 Concrete mixer.....H. U. Prindle
 Concrete piling, Incased.....J. Kenny
 Conduits, Means for detaching obstructions
 from electric, telephone and other cable.....
 M. Blumenthal
 Contact, Electrical sliding.....J. V. Pursell
 Control device.....G. J. and F. E. Baker
 Conveyor.....A. Wakefield
 Conveyor.....L. W. Tibyrica
 Cordage and making same, Package of.....
 K. G. Carpenter
 Cores or molds, Means for producing.....
 W. Kurze
 Corn rack and elevator.....H. W. Steege
 Cotton condenser and regulator.....J. B. Nixon
 Cotton-gin roller.....S. D. Shepperd
 Cotton picker.....E. Swindell
 Couch, Folding.....J. Hoey
 Crate.....J. F. Schoeppl
 Cuff.....C. H. Smith
 Cultivator attachment.....J. W. Gamble
 Culvert, Sheet-metal.....J. H. Dean
 Cupola.....W. J. Triick
 Current commutator-motors, Means for com-
 pensating polyphase alternating.....
 E. F. W. Alexanderson
 Current motor controller, Alternating.....
 C. A. Dresser et al.
 Curtain and shade fixture.....H. Scheiding
 Curtain fixture.....R. Reubel
 Curtain stick machine.....W. H. Ramsey
 Cuspidor.....A. Warne
 Cylinder cleaner, Engine.....G. W. Gardner
 Cylinder-tooth.....H. Vohland
 Dehydrating apparatus.....E. W. Cooke
 Dental blower and syringe, Automatic.....
 I. W. Bush
 Derail.....T. F. McEvoy
 Desk, table, or cabinet.....
 C. de Vleeschouwer et al.
 Die upsetting device.....W. E. Sennett
 Dispensing tank hood.....T. Reis
 Display device.....E. P. Hirst
 Ditch, Concrete.....S. L. Stovall
 Door lock.....C. Knudsen
 Door operating means.....F. O. Hult
 Doors, Pier-shed.....H. T. Goss
 Dowel cutting tool.....G. E. Garon
 Drag, Road.....C. E. Bolt
 Draw bar buding gear.....J. Hook
 Drawing board.....E. J. Early
 Drawing knife gage attachment.....
 W. H. Cleveland, Jr.
 Drill presses, &c., Detachable turret for.....
 J. Brozek
 Drill share.....J. Kuhnert
 Dry cell battery.....A. Rordame
 Drying machine.....A. K. Miller
 Drying-rack.....H. A. Thomas
 Edge, Straight.....M. R. Leaman
 Egg carrier.....R. O. Hammond
 Elastic fabric.....W. Kops
 Electric circuit attachment plug (3 pats.).....

- Electric cut out fuse.....F. H. Chapman et al.
Electric fluid heater regulator.....L. E. Steward
Electric generating, transmitting, and distributing system.....W. S. Hadaway, Jr.
Electric motor controller.....F. W. Walker
Electric motor driving unit.....H. F. Stratton
Electric motor operated machines, Brake for.....M. Taigman
Electrical communicating system.....M. Taigman
Electrical distribution system.....L. W. Miller
Electrically transmitting orders or signals and for indicating their nature and the points of transmission, Means for.....J. O. Luthy
Electrolytes, Heating molten.....H. Quertier
Elevator doors and cars, Controlling mechanism for.....F. Kugelgen et al.
Elevator safety device.....H. C. Randall
Engine, Gas.....M. C. Hutchings
Engine starter.....E. W. Fletcher
Evaporating and distilling plant.....F. Gahm
Excavating shovel.....W. Weir
Expanding ring, Joint.....C. A. Morris
Expansion lift.....H. Ferrell et al.
Explosive fluid storage reservoir.....M. L. Senderling
Extractors, Making nail.....C. J. Coleman
Eyeglass case.....W. F. Hobbs
Eyeglasses, spectacles, Construction of.....J. Currin
Fastening device.....L. Courlander
Faucet.....F. P. Warren
Feed can-marking machine, Gravity.....G. Rollwing
Fence post.....E. A. Vary
Fence post.....W. L. Collins
File, Bill.....E. A. Hanson
Finishing machine.....A. Safro, et al.
Fire alarm, Automatic.....F. M. Furber
Fire alarm, Electric.....L. J. Bryant et al.
Fire alarm signal box.....F. Ricords et al.
Fire escape.....W. J. Leveridge
Fire extinguisher, Automatic.....D. I. Reed
Fire sheets, Flue connection for.....A. La Breche
Firearm.....R. B. Housley
Firearm silencer.....C. A. Nelson
Fish guard.....H. P. Moore
Fish screen.....R. Chandler
Flange, No-slip.....H. I. Shotwell
Fluid flow meter.....A. C. Schuermann
Fly paper holder.....J. Wilkinson
Fly paper holder.....A. W. Bischoff
Flying machine.....J. R. Smith
Foldable table structure.....S. L. Buchanan
Forming machine (2 pats.).....V. J. Griesheimer
Frame mechanism, Casing for roving.....J. D. Mattison
Frameless gate.....E. E. Blake et al.
Furniture, Sheet metal.....M. A. Stickley
Fuse plug.....E. J. Jones
Fuse plug.....T. E. Murray
Galvanic battery.....C. B. Schoenmehl
Game (2 pats.).....C. A. Richmond
Game table.....L. Dosch
Gas and vapor absorber and separator.....H. Hey
Gas apparatus, Air.....S. Olsen
Gas burners, Attachment for incandescent.....M. Giorgio
Gas cut off.....E. T. Thayer, Jr.
Gas-engine-starter valve.....G. R. Holliger
Gas generator, Acetylene.....T. G. Allen
Gear, Electrically-operated reversing.....K. Brull
Gear wheel.....G. B. Owen
Gearing.....C. J. Marth
Gearing for drills, Safety.....J. O. Foster
Gearing for stretchers.....S. A. Ulrich
Glass-blowing machine.....J. Rau
Gluing and dowel-driving machine.....J. R. Frantz
Gowd, Invalid bed.....M. E. Hutchinson
Grain-clearing machine.....J. C. Cranier
Grain-shooking machine.....J. E. Griffith
Grain-shooking machine.....H. L. Edge
Grain-treating machine.....H. Lyng
Graphite from a amount crucibles, Recovering.....A. Teichmann
Grip device for exhibitors, Internit.....J. P. Sheagren
Gun, Air.....E. S. Roe
Hammer mechanism, Drop.....P. Malmgren
Hand wheel for valves, &c.....A. L. Sessions
Handle, Joint adjustable.....A. Oriol
Hardening mixture, Case.....J. F. Sallows
Harvester, Seaweed.....G. H. Ennis
Hat pin, Safety.....E. H. Freeborn
Hay carriers, Automatic return for.....A. Burkhow
Hay curing and stacking device.....J. E. Harris
Hay rake feeder.....E. N. Smith
Headlight, Automatic.....B. H. Brown et al.
Headlight, Changeable.....V. Howard et al.
Heater.....A. Jensen
Heel-breasting machine.....D. J. F. Buck
Heel-building machine.....R. C. Simmons
Heel-operating machine.....P. J. Riley
Heel-operating machine.....H. W. Kenway
Hinge, Spring.....O. Katzenberger
Hog scraper and conveyor.....A. Hannaford
Holder, Box.....W. H. Ramsey
Holder.....M. G. Melvin
Hook-setting machine.....G. W. Brown
Hub flange, Wheel.....F. Kopplin
Hub, Resilient wheel.....J. W. Brady
Humidifier.....C. S. Drake
Humidity, Apparatus for indicating and regulating.....W. B. Hodge
Hydraulic feed, &c., Pump mechanism for.....E. P. Hess
Hydraulic power-transmission device.....A. Citroen
Hydroplane.....S. E. Bailey
Ice pick.....J. Hutchinson
Incandescent molten to holders, Attaching inverted.....A. Scheidegger
Incubator egg-supporting surface.....J. L. Shute
Incubator thermometer holder.....W. G. Weed
Indicator mechanism.....E. J. Pace et al.
Induction motor.....R. E. Hellmund
Induction motor.....W. H. Powell
Insulator.....K. Bruchsaler
Insect-excluding attachment for buildings.....D. A. Clark
Internal-combustion engine.....D. E. Pratt
Internal-combustion-engine fuel pump.....A. H. Hoadley
Internal-combustion-engine valve gear.....K. Steinbecker
Internal-combustion engines, Combined air motor and compressor for starting.....H. A. Lord
Invalid-handling apparatus.....J. A. Pitts et al.
Iron.....H. Lindstrom
Jar cover, Dispensing.....E. T. Langan
Kettle or boiler, Inner.....W. H. Nutter et al.
Knife-lubricating device.....D. S. Seymour
Label moistener.....C. W. De Laney
Lacquering machine.....W. W. Vincent
Lacquers and varnishes, Manufacture of.....A. Cohn
Ladle.....J. O'Connor et al.
Lamp.....J. G. McGregor
Lamp, Gas.....J. and G. Keith
Lamp holder, Miner's.....N. Friedland
Lamp, Miner's.....C. Dushek
Lamp shade.....J. Gilsey
Last.....H. A. Ballard
Lasting machine.....M. Brock
Lasting mechanism, End.....A. L. Russell
Letter box.....W. B. Benham
Line-casting machine.....D. S. Knox
Link, Fusible.....S. M. Marshall
Liquid-fuel gasifier.....W. L. Corson
Liquid gauge.....L. Meyer
Liquid pasteurizer and cooler.....A. Jensen
Liquid-stirring and mixing apparatus.....C. Still
Liquids, Apparatus for separating and recovering fibers, &c., from.....E. V. Chambers et al.
Locking device for clasps.....M. Schiff
Locomotive.....F. J. Doyle
Locomotive bearing.....J. E. Webster
Locomotive-driving-valve mechanism.....F. W. Martin et al.
Locomotive, Electric.....G. M. Eaton
Looms, Construction of power.....J. Wintermayr
Lubricator.....J. H. Van Sinderen
Magnetic objects of oblong shape, Machine for facilitating the packing of.....O. Gampner
Manuscript holder.....J. Triplett
Match box.....S. J. Adams
Match box, Single-delivery.....J. G. Bell
Measuring instrument.....A. Kowalsky
Metal-bending machine.....W. Vollmer
Metal, Expanded.....D. G. Clark
Metal surfaces, Producing clean or oxidized.....J. A. Hatfield et al.
Metallic box (2 pats.).....W. I. Tuttle
Microphone.....J. J. Comer
Milling machines, Gear-cutting attachment for.....L. E. Bagwell
Mortising tool, Hinge seat.....A. Wassberg
Motor cars and other vehicles, Wheel for.....W. T. Smith
Motor-control system.....C. S. Dauler
Motor-control system.....J. H. Hall
Mower windrower attachment.....R. F. Willis
Music sheets, Speed for perforated.....O. Nelson
Musical instrument, Pneumatically-actuated.....A. Phillips
Muzzle.....C. Hickey
Nail puller.....J. A. Giles
Nailing machines, Attachment for box.....P. J. Healy
Necktie form.....L. W. Pennington
Nipple-anchoring means.....A. C. Schuermann
Nut, Lock.....J. M. Doolittle
Nut, Lock.....E. I. Dodds
Nut wrench.....J. Huber
Obstetrical instrument.....W. B. Reeve et al.
Oil from fish, Extracting.....W. E. Overton
Oiler.....K. A. Boggs
Ordinance breech mechanism.....A. T. Dawson et al.
Ore concentrator, Centrifugal.....E. C. Latchem et al.
Package-capping machine.....J. R. Harbeck
Packing.....D. E. Cota
Pasteboard boxes, Machine for making paper-lined.....F. Altmann
Pattern on fabrics, Producing.....M. Freiburger
Pedestal side frame.....G. G. Floyd
Pen, Fountain.....W. L. Chapman
Pen, Fountain.....R. H. Stevens
Pen, Fountain.....J. G. Coffin
Pencil sharpener.....C. F. Bloch
Perforating machine for leaves or sheets.....C. E. Morehouse
Phenol and formaldehyde, Making an anhydrous reaction product of.....F. G. Wiechmann
Phonograph stop mechanism.....G. H. Taggart
Piano pedal.....C. Mehlh
Pianos, Expression mechanism for automatic.....G. H. Davis
Picture mount.....P. E. Housh
Pile fabric.....W. H. Mellor
Pipe-fitting and steam separator, Combined.....W. S. Elliott
Pipe molds, Apparatus for making.....W. C. Swift
Plow.....A. Schmidt
Plow-marking attachment.....W. V. Davis
Plumb-bob support.....W. B. Honey
Pocket, Safety.....J. Zabielski
Pole, Reinforcing.....R. S. Orr
Post, Rubbing.....R. F. and T. E. Wright
Poultry feeder.....C. W. Zimmer
Poultry-feeding device.....I. M. Graham
Power-transmission mechanism, Fluid-operated.....C. S. Kellogg
Pressure regulator, Fluid.....J. M. Kaminsky
Primary battery.....C. B. Schoenmehl
Printing device.....J. S. Duncan
Printing machine.....G. M. Breckenridge
Projectile tracer.....P. D. Bunker
Propeller.....H. D. F. Bagley
Pulverizer.....A. Kefring
Pump, Rotary.....A. F. Ford
Radiator, Cleanable heat.....W. E. Bahr
Rail chair.....J. W. Shafer
Rail fastening.....J. Harmatta
Rail joint.....P. W. L. Meadows
Rail joint.....H. Reed
Rail joint.....H. Riddle
Railway-car-draw-bar support.....P. M. Elliott
Railway gate, Automatic.....C. Grunow
Railway rails, Means for preventing the creeping of.....L. W. Kent
Railway spike.....H. E. Zacharias
Railway switch.....A. Lefebvre
Railway switch, Electrically-controlled.....E. S. Olmsted
Railway tie.....P. E. Pero
Railway tie, Metallic.....S. B. Elkins, Jr.
Railways, Shoe or skate for electric.....A. W. Barnhart
Razor, Safety.....H. L. Henry
Reaming and recessing machine.....W. G. Benninghoff
Recording mechanism.....B. F. Silliman
Recuperator.....F. Stammerschulte
Refrigerator.....R. A. Riek
Register and ventilator construction.....E. C. Goodwin
Reversing means, Motor.....W. B. Taylor
Rim, Demountable.....L. A. Gordon
Roof joint.....C. A. Overton
Roundhouses, Equipment for.....W. J. Bohan
Rule, Flexible.....A. E. Hegardt
Rule for irregular curves, Drawing.....R. P. O. Sahn
Rule joint, Folding.....C. Bodmer et al.
Sand, Device for reclaiming.....W. C. Fletcher et al.
Sash lock, Automatic.....N. Rusk
Saw.....J. E. O'Neill et al.
Scale.....A. P. Aiken
Scale, Automatic weighing.....G. Stabl
Scale, Postal.....J. W. Vaughn
Scale, Scoop balance.....F. C. Wright
Scale, Weighing (2 pats.).....J. L. Saylor
Scissors, Buttonhole.....P. Friederick
Screen.....E. Lynch
Screening machine.....J. F. and A. W. Mold
Seal (2 pats.).....E. Tyden
Seal lock.....E. Tyden
Seal-lock hasp.....E. Tyden
Seal-lock seal.....E. Tyden
Seal-locked can.....E. Tyden
Seeder.....E. J. Youngberg
Separating mechanism.....F. H. Mason et al.
Separator.....J. W. Gamble
Set-tub clothes-washing attachment.....E. Cavender
Setting machine.....E. B. Stimpson
Sewage vault for closets, Antiseptic.....F. E. Wilson
Sewing machine (2 pats.).....G. S. Hill
Shade support, Window.....F. W. Hagemeyer
Shaft support.....W. L. Watterson
Sheet-delivery mechanism.....J. White
Sheet material, Machine for operating on.....A. Calleson
Shelf, Adjustable.....H. M. Dungan
Shipping case, Refrigerating.....A. P. Haines
Shock former.....J. F. Wheeler
Shock loader.....G. A. Imhoff
Shoe for artistic dancing.....F. Henschel
Show-case roller guide.....J. Knappe
Sign.....R. F. Mason
Sign holder, Display.....F. W. Beckwith
Signaling and train-stopping combination circuit device, Automatic.....C. C. Turner
Signaling and train-stopping device, Automatic.....C. C. Turner
Signaling by electromagnetic waves.....R. A. Fessenden
Signaling circuits, Controlling system for.....G. E. Beach et al.
Signaling device.....M. Levison
Siphon recorder.....S. G. Brown
Sizing and preparing same.....A. A. Dunham
Skiving machine.....S. G. Ross et al.
Skiving machine.....H. Lyon
Sled.....R. Kelly
Smelting metals.....J. D. Hilliard
Soap-dispensing device, Liquid.....C. B. Buerger
Softening and filtering apparatus.....M. C. Reynolds
Sole-rounding machine.....W. C. Baxter
Sound waves, Means for producing.....L. E. Cote
Spark plug.....F. J. Walker et al.
Speed and power transmitting mechanism.....C. S. Kellogg
Speed-indicating and registering device, Automatic.....R. Star
Speed-varying transmission.....F. H. Cheyne
Speedometer.....J. K. Stewart
Spinning machine.....F. S. Culver
Spinning-machine spindles, Ball-bearing for.....R. E. Walther
Spring and pneumatic wheel.....J. A. Gray
Sprinkler.....J. P. Campbell
Stamp or ticket vending machine.....S. L. W. Coo
Stamps on beer casks, Implement for destroying revenue.....C. Wehner
Stanchion, Cattle.....W. F. Jacobs
Starting device, Motor.....T. J. Roberts
Steam engine, Rotary.....C. Franco
Steam-heating apparatus.....J. L. Fitts
Steel and refining thereof, Apparatus for the manufacture of.....J. W. Latcher
Steel furnaces, Spout for.....C. E. Michaels
Stone puller.....J. Gustin
Stopping mechanism, Rove.....J. Boyd
Stove.....W. E. Huenefeld
Strainer, Milk.....C. H. Clark
Stream deflector.....W. H. Dean
Stucco and other plastering material, Support for receiving.....M. H. Jester
Submarine signaling.....L. I. Blake
Supporter.....M. E. Bird
Swimming apparatus, Dry.....R. Kupfer
Swing.....J. W. Culp
Switch.....G. W. Hart
Syringe.....A. E. Wilde
Syringing machine, Vacuum.....W. G. Murray
Table, Extension.....H. W. Bradner
Talking and moving-picture machines, Means for synchronizing.....H. T. Crapo
Talking machine.....W. H. Rawles
Talking machines, and holder therefor, Double-pointed reproducing stylus for.....E. T. Condon, Jr.
Tapping and reaming head.....W. M. Neckerman
Target-game apparatus.....C. A. Richmond
Telegraph.....V. Colzi et al.
Telephone system, Intercommunicating.....P. G. Burgess
Thermoregulator.....W. J. Smith
Ticket deposit box.....J. Anderson
Time-cost meter.....J. T. Quigley
Tire.....J. J. Patton
Tire.....W. G. Chipley
Tire antiskidding attachment.....W. E. Budd
Tire chain.....J. Weaver
Tire for vehicle wheels, Spring.....C. H. Vidal
Tire gauge.....J. F. Waters
Tire-preserving compound.....S. R. Ball
Tire, Vehicle wheel.....H. L. Stillman
Tobacco cutter.....J. W. Arrants
Toe spreader.....W. M. Scholl
Toe-straightening appliance.....W. M. Scholl
Tool, Combination.....H. G. Wernimont
Tool holder.....A. Cousot
Tool, Percussive (2 pats.).....L. C. Bayles
Toothed wheels, milling cutters, and the like, Grinding of.....A. Aichele
Torpedo, Railway signal.....F. Dutcher
Torpedoes, Steering mechanism for automobile.....F. M. Leavitt
Toy.....J. F. Schoeppl
Toy.....E. P. Lehmann
Toy track switch mechanism.....A. E. Miller
Traction-engine flexible draw bar.....C. Edwards et al.
Traction vehicle.....L. S. Cushman
Transmission mechanism.....J. G. Utz
Trap.....J. R. McClenahan
Trees, shrubs, and vines, Device for applying substances to.....W. R. Kleckner
Trench digger.....M. G. Blick
Trolley finder.....P. J. Minck
Trousers stretcher and coat hanger, Combined.....J. Amato
Trowel.....J. B. Runner
Truck brake, Six-wheel car.....C. F. Frede
Truck side frame, Car.....W. D. Forsyth
Trunk and the like, Traveling.....G. Bruckmann
Trunk fastener.....W. D. Barnes
Trunk, Sectional.....A. J. Gunn
Trunk, &c., with lids.....A. Forbes
Type, Device for locking lines of.....C. E. Gilbert
Type-setting and line-casting machine, trix.....H. Degener
Type-writer attachment.....F. H. Alder
Type-writer attachment for desks.....L. B. Pooler et al.
Type-writing machine.....G. A. Seib
Type-writing machine (2 pats.).....C. H. Vogel
Type-writing machine.....J. C. McLaughlin
Type-writing machine.....H. H. Steele
Type-writing machine.....A. J. Briggs
Type-writing machine.....A. G. E. Kurovski
Typographical machine.....L. L. Kennedy
Typographical machine.....G. O. Kingsbury
Umbrella, Book.....J. Sweeney
Underreamer.....R. E. Bole
Universal joint.....R. Huff
Vacuum cleaning apparatus.....J. P. Clifton
Valve, Discharge.....A. L. Brown
Valve mechanism, Trap.....J. B. Armstrong
Valve, Reversing.....W. O. Amsler
Vaporizer.....J. T. Freestone
Vaporizer attachment.....E. M. Norton
Varnish.....A. Kuegel
Vehicle axle-upsetting machine.....C. W. Greu
Vehicle door fastener.....R. H. Wilcox
Vehicle motor.....T. F. McCallister
Vehicle storm shield.....C. F. Wensinger
Vehicle tractor system, Motor.....A. H. Hoadley
Vehicle wheel.....J. D. Van Idersine
Vehicle wheel, Road.....W. D. Douglas-Jones
Vehicle wheel, Spring (3 pats.).....J. F. and H. E. Sipe
Ventilating device for cisterns.....W. L. Carter
Ventilator.....E. O. Janek
Voting machine.....F. W. Godfrey
Voting machine.....W. J. Lausterer
Voting machine.....G. W. Henning
Voting machines, Interlocking mechanism for.....J. H. Dean
Voting machines, Interlocking mechanism for.....C. H. Ocumpaugh
Wagon.....E. M. Wheelock
Wagon hoist.....H. W. Steege
Wall construction.....L. J. Dare
Watch balance staff.....A. E. Hurwitz et al.
Watch, Impulse and rotary stem winding and setting.....A. Plean
Water flow, Apparatus for measuring and registering.....W. F. Englebright
Water purifier, Electric.....L. A. Fitzer
Water-supply system, Non-freezing, P. Hardy
Watering trough.....M. and B. Greenberg
Weaving apparatus, Fabric.....E. Prein
Weed-killing train.....I. F. Orton
Weighing machine delivery mechanism.....E. S. Kneeland
Well casing or tube perforator.....P. F. Yungling
Window shield, Car (Reissue).....W. B. Hanlon
Wire clip.....H. Lea
Wood trimmer.....J. S. Pickles
Wrench.....O. Weston
Wrench.....A. Laitinen
Wrist strap and coin holder, Combined.....W. L. Tidd
Writing a plurality of signatures, Machine for.....F. A. Johnson
Writing machine, Multiple.....F. A. Johnson
Zinc compounds, Reducing.....E. B. Cutten

ISSUED DECEMBER 9, 1913.

MECHANICAL PATENTS.

- Abdominal supporter.....E. M. Dhale
Adding machine motor stand.....C. E. W. Gardner
Adjustable bracket.....M. Kurizon
Advertising device.....J. F. Cunningham
Advertising-display mechanism.....A. L. Runyan
Aeroplane.....L. J. Bergdoll
Aeroplane.....L. A. Vachon
Aeroplane.....T. Eising
Aeroplane.....B. J. Pressey
Agricultural implement, Combination.....H. E. E. Molkeuthin
Agricultural machine.....W. R. Arbour et al.
Air compressor.....W. E. Ver Planck
Air compressor governor, Centrifugal.....R. H. Rice

- Alimentary products, Manufacture of. P. Muller
 Ammonia compressor T. Shipley
 Ammonia nitrate by the ammonia-soda process, Making F. A. Freeth et al.
 Anchor V. P. Smith
 Annunciator, resetting circuit. J. O. Cadieux
 Ash pot H. Leidel
 Ash sifter M. L. Sobra
 Assembler, Wheel O. C. Ketring
 Atomizer G. J. Kelley
 Auto jack C. Knudson et al.
 Auto strap fastener, Adjustable concealed G. E. Robinson
 Automobile G. De Feyre et al.
 Automobile and other vehicle wheel. O. H. Attridge
 Automobile emergency windlass L. O. Pillsbury
 Automobile foot accelerator. O. Speneer
 Automobile jack J. D. Bunn
 Automobile-raising apparatus. J. J. Preece
 Automobile sign holder. H. O. Havemeyer
 Automobile wheel. J. A. Kolby et al.
 Automobile wheel rim. O. L. Piekard
 Automobiles and other vehicles, Device for automatically lifting and supporting. T. H. Sparks
 Awning (3 pats.). E. F. Hartshorn
 Awning or canopy for chairs, Collapsible J. Grissim
 Bag fastener H. Tueckmantel
 Bale tie C. E. Pulver
 Barrel, Metal G. G. Fryer
 Barrel or receptacle. L. Sterneck
 Bath apparatus, Vapor. A. Brueggeman
 Bathing boat C. M. Johnson
 Baton, staff, or cane. J. H. Sutlive
 Bean assorter R. F. McWilliams
 Bed and movement therefor, Folding and disappearing A. E. Abbott
 Bed couch N. Webster
 Bed davenport A. C. Kloppe
 Bed, Folding H. A. Tracy
 Bed frames or the like, Leg-locking means for foldable A. C. Kloppe
 Bedstead knob S. J. Fletcher
 Belt fastener O. W. Dodge
 Belt tightener J. P. German
 Bleaching articles A. J. Rossi
 Block, Non-toppling. A. E. J. Luckhurst
 Blotter, Hand-attached H. Marui
 Blow-out patch C. E. Brown
 Blower C. V. Kerr
 Boat, Life A. B. Andreassen
 Bobbin stripper R. Walworth
 Bobbin-stripping machine. R. Walworth
 Book support W. T. Shea
 Boots and shoes, Machine for burnishing the edges of the soles of. Z. Beaudry
 Bottle-closing and sealing stopper J. P. Carson
 Bottle-handling device. T. F. Lamb
 Bottle, Lock seal J. Sharp
 Bottle stopper G. F. Barlow
 Bottle stopper, Hot-water. C. F. Schuh
 Box fastener E. W. Stamm
 Box-making machine G. M. Westland
 Brake beam third-point-suspension mount C. H. Williams
 Brake head E. G. Busse
 Brake shoe B. A. Johnson
 Bread or dough cutter M. Devine
 Breaker and proportional unloader, Combined vacuum C. Wainwright
 Brickmason's steel trig A. A. Lake
 Broom attachment A. McDouald
 Brush, Fountain W. F. Moss
 Brush, Fountain W. F. Ziegler
 Brush, Massage shaving. W. Morrison
 Brush, Tooth (2 pats.). S. B. and G. S. Husch
 Buckle L. S. Ayer
 Bullet, Mushroom (4 pats.). T. C. Johnson
 Bullet, Mushroom. H. W. Starkweather
 Buoyancy tank A. Ehinger
 Burglar alarm, Electric. H. S. Bitting
 Button A. B. Commerford et al.
 Button fastener A. W. Stone
 Button-fastening-machine anticlogging attachment G. W. Perkins
 Button-tab end J. B. Russ
 Cabinet, Kitchen H. J. Ritter
 Cabinet, Safety towel. H. Solomon
 Cableway (2 pats.). F. Halterman
 Calculating machine H. Hopkins
 Calculating machine. W. F. Gatewood et al.
 Calculating machine C. A. Bishop
 Calculating machine F. Trinks
 Camera A. Voris
 Camera flash-light attachment P. Dietz
 Can carrier A. E. Peppe
 Can opener G. W. Johnson
 Car C. P. Astrom
 Car R. J. Magor
 Car-advertising apparatus, Street. M. P. Smith
 Car attachment, Motor. A. J. Crist
 Car, Box R. J. Magor
 Car, Convertible flat and hopper bottom dumping R. W. Burnett
 Car coupling J. W. Barth et al.
 Car coupling H. R. Swan
 Car-door lock, Dump R. W. Burnett
 Car, Dumping C. P. Astrom
 Car-end framing V. E. Sisson
 Car, Motor P. H. Adams
 Car, Tank L. E. Evans
 Car-temperature register. R. F. Blow et al.
 Car, Tilting A. Preussler
 Car underframe (Reissue). B. Magor
 Carburetor G. J. Mayer
 Carburetor W. P. Hagnelet
 Carburetor F. Durr
 Carburetor J. M. Ulrich et al.
 Carburetor. Internal-combustion-engine. E. P. Everest
 Carburetor, Internal-combustion-engine G. F. Bull
 Cartons and the like, Means for opening O. C. Schulz
 Cash register J. H. McCormick
 Casing, Spring O. Lampe
 Cement and making, Waterproof. R. Schuler
 Cementing machine W. G. Eaton
 Centering device (2 pats.). V. E. Sisson
 Centrifugal drier J. V. Krauebiel
 Chimney cleaner L. Moeller
 Chuck F. L. Smith et al.
 Chuck, Automatic D. W. Wood
 Cigar and cigarette holder. J. Hauenstein, Jr.
 Cigar-making machine C. F. Bremer
 Clasp W. Conway
 Clock, Electrically-operated alarm. W. P. Locke
 Closet-sanitation system. E. L. Miller
 Closet-seat sanitary cover. N. Camelo
 Cloth-shearing machine E. F. Butler, Sr.
 Clutch P. Farwell
 Cock, Locomotive-boiler frost H. Jagielski et al.
 Coffee machine C. Nelson
 Coin-counting machine A. C. O. Boek
 Coin-operated mechanism H. Faehs
 Collapsible box D. H. Maguire
 Collar W. G. Kennedy
 Collar and fastening means therefor, Combined separable J. McLellan
 Collar fastener J. E. Fitzgerald
 Collar fastener A. C. Woodward
 Collar, Inflatable horse. J. F. Pruden
 Collar-pad, Sweat J. M. Eilers
 Colter cleaner H. J. Boelter
 Combustion engine J. A. Charter
 Compound-reducing apparatus. H. Niewerth
 Compressor, Rotary K. Ahlquist
 Concentrator, Centrifugal. C. A. Christensen
 Condensing apparatus E. Thomson
 Control device, Foot-operated. J. A. Staples
 Converter process O. Thiel
 Conveyers, Attachment for lateral A. C. Van Houweling
 Cooking utensil L. R. St. John
 Coop, Folding chicken. C. A. Danielson
 Corn header F. E. Spencer
 Corset R. Yeganian
 Cot A. P. Pascale et al.
 Cotton condenser T. S. Grimes
 Cotton picker J. W. Dinsmore
 Crank-shaft support. A. P. Witteman
 Crate, Collapsible shipping. J. E. Edwards
 Crate, Folding W. Herzfeldt
 Cream separator, Centrifugal. J. and A. Persoons
 Culinary-article support C. Nelson
 Cultivator H. Nagel
 Curb box C. E. Tyler
 Curette P. Romeo
 Current motor O. L. Howe
 Curtain bracket F. Washburn
 Cylinder liner C. G. Sprado
 Dam G. S. Binckley
 Damper, Chimney T. Podmore
 Damper regulator, Automatic. H. V. Barron
 Dental appliance C. M. Ballenger
 Dental articulator R. W. Burch
 Desiccating apparatus P. W. Foster
 Dinitro-methylamino-phenyl-arsenic acids, Making derivatives of. L. Ach et al.
 Dish-washing machine C. L. Lilleberg
 Display device A. Hendon
 Display holder W. C. Klee
 Display lid, Knockdown. P. A. Becker
 Display rack A. W. Bair
 Display stand. H. E. Bartindale et al.
 Door lock J. Grandits
 Door rigging, Automatic drop. C. C. T. Willson
 Double lock, Automatic. M. C. Sloderbeck
 Dough divider P. F. Carroll
 Draft gear J. J. Kanane
 Draft-rigging, Friction. J. F. O'Connor
 Dress form F. J. Madell
 Dress shield F. A. Bush
 Dry closet W. Schierding
 Drying-apparatus feed mechanism. F. Kukkuck
 Drop-end box M. S. Sellman
 Dynamometer for casing screws and other purposes R. W. Stephens
 Egg case, Collapsible. M. L. Fuuk
 Elastic webbing and producing same. F. H. Prissell
 Electric conversion S. Cabot
 Electric furnace G. Massip
 Electric generators and motors, aminated core for H. H. Wait
 Electric machine, Dynamo. V. G. Apple
 Electric switch O. M. Knoblock
 Electric switch J. N. Wallace
 Electric switches, Time-controlled mechanism for operating. J. C. Van Slyke
 Electrical apparatus (3 pats.). H. E. Reeve
 Electrical coil and winding same. M. Helm
 Electrical reduction furnace. R. E. Fricker
 Electrical switch O. L. Davis
 Electrode, Battery. J. J. Auringer
 Electromagnetic suspension, Device for. H. Zoelly
 Elevator mechanism. A. W. Le Boeuf et al.
 Elevator safety device H. Phillips
 Embroidering machine, Shuttle. J. Groetschel
 Embroidery-machine thread-catching and severing device A. Keller
 Embroidery-machine thread-catching and severing means, Shuttle A. Keller
 Engine J. B. Donovan
 Engine cylinder J. W. Cruzan
 Engine fuel gasifier, Internal-combustion. H. Fuchs
 Engine safety device, Internal-combustion. B. Lemp
 Engine starter (2 pats.). C. H. Myers
 Engine starter T. J. Gray
 Engine starter, Gas. C. E. Henning
 Engine-starting mechanism. J. H. Durno
 Engine-supporting means. H. G. Chatain
 Engines, Lubricating-oil-conservation attachment for gas C. Mayfield
 Escapement S. Czapas
 Excavating and conveying apparatus J. L. Potter
 Expansion bolt L. R. Zifferer
 Explosive engine D. W. Jones et al.
 Fabric-folding device. H. S. Burnham
 Fan, Electric G. C. Marx et al.
 Fare box C. C. Voglesong
 Faucet attachment, Fluid-mixing. L. Davis
 Faucet attachment, Sanitary. C. E. Kells, Jr.
 Faucet bung D. Beebe
 Feed-water heater and purifier. T. O. Organ
 Feeder for live stock, Salt. E. B. Myer et al.
 Feeding device, Stock. F. H. Schultz
 Fence post T. W. Wright
 Fencing and the like post. T. W. Wright
 Fifth wheel M. E. Wagner
 File handle, Paper K. A. O. Frindt
 Filing cabinet for credit slips. W. H. Muzzy
 Filing cabinets and the like, Base for. O. E. Wilson
 Film-winding apparatus. H. J. Hamann
 Filter for gasoline, Water-separating. C. A. Entorf
 Fire-fighting apparatus. A. C. Farrand
 Fireproofing composition W. A. Hall
 Fish hook, Automatic. F. Foerster
 Fish scaler F. Knapp
 Flash machine J. L. Courson
 Floor polisher and sweeper. M. Lary
 Flower holder W. S. Daniels
 Fluid compressor (2 pats.). C. Wainwright
 Fluid-compressor-governing device C. Wainwright
 Fluid-flow-controlling device. P. Mueller et al.
 Fluid-pressure-apparatus regulator A. C. A. Rateau
 Flushing device N. J. Gondolf
 Fly-chasing attachment for doors. J. W. Shumate
 Fly paper N. L. Foster
 Flying machine C. E. Smith
 Folding box J. A. Wagnitz
 Food product H. M. Isaacs
 Form support, Dress W. E. Hume
 Furnace G. Wilton
 Fuse device, Multiple. G. S. Shoupe et al.
 Fuse, Inclosed electric (2 pats.). F. N. Conant
 Garment hanger A. L. Mann
 Garment hanger, Folding. H. M. Owens
 Garment hook P. Marquand
 Gas burner G. E. Nickol
 Gas engine A. A. Paysen
 Gas from sewage, Apparatus for the production of. C. Biraull
 Gas furnace A. H. Lewis
 Gas igniter J. L. Ducharme
 Gas-purifier curb and holdfast. E. F. Lloyd
 Gas washer A. H. Lyman
 Gear wheel A. S. Finch
 Gears, Mechanism to prevent the stripping of transmission H. M. Thoreson
 Gearing, Transmission J. Chalmers
 Gearing, Variable-speed. W. H. Raven
 Glassware, Machine for forming hollow. R. Williamson
 Globe, Geographical. B. J. S. Cahill
 Glove E. Dacorsi
 Go-cart spring mounting. F. H. Headley
 Goggles G. B. Collier
 Gravity motor J. M. Schilling et al.
 Grinding G. I. Alden
 Grip device, Intermittent. C. A. Kenworthy
 Gun and rifle, Cadet. E. L. Tiffany et al.
 Gun-cleaning rod T. W. Cook
 Hair-drying apparatus, Wet. A. Schriever
 Hame clip A. C. Back
 Harness attachment for securing nets and blankets F. H. McCormick
 Harness back pad J. S. Cusson
 Harrow and cultivator A. Stavinocha
 Harrow bar J. Kiel
 Harrow, Lister J. Kiel
 Harvesters from traction engines, Gang-frame attachment for driving. A. H. Siemen
 Hat-blocking apparatus. M. Fieker
 Hat box, Folding A. I. Selcer
 Hats, Apparatus for rapidly shaping. F. Stoffel
 Head and arm rest L. Styve
 Headlight, Dirigible. C. C. Hendry
 Heating apparatus, Solar. M. De la Garza
 Heating element, Electric. D. Huntley
 Heating liquids by electricity, Apparatus for J. von Hentzel
 Heel-building machine G. A. Dohyne
 Heel cushion J. Razntch
 Helmet, Football S. Hipskiss
 Hickey (2 pats.). P. T. Zizina
 Hoist, Portable T. F. Moore
 Honing and stropping machine. L. A. Flinker
 Hooper-door-operating device. L. G. Handy
 Horseshoe calk, Detachable. I. H. Gilliland
 Hose coupling, Threadless. P. Berg
 Hose coupling, Threadless. P. Berg
 Hose holder, Adjustable. W. H. Matthews
 Hub (Reissue). J. D. Jones
 Hydrant, Compression. J. A. Rourke
 Hydrocarbon burner E. P. Harms
 Hydrocarbon motor (2 pats.). R. Huff
 Ice box R. W. Hartwell
 Indicating lock M. Arita
 Inductance coil F. G. Thackaberry
 Instep support M. J. O'Rourke
 Insulator, Strain G. A. Mead et al.
 Internal-combustion engine. A. M. Bach
 Internal-combustion-engine fuel-supply regulator A. E. Bray
 Internal-combustion propulsion apparatus. R. Diesel
 Ironing machine R. E. Dodge
 Ironing table L. R. Brewer
 Irrigating dam P. C. Baker
 Jack and thill support, Combined. G. Adams
 Key-operating-machine trigger mechanism. D. Petri-Palmedo
 Keyboard (2 pats.). O. Petermann
 Knee pad and foot rest for church pews, Combination movable. M. Lavigne
 Knee protector D. B. McCall
 Knitting machine F. D. Holmes
 Knitting machine, Circular. W. Spiers
 Knitting machine, Circular. F. B. Wildman
 Knitting-machine clocking attachment, Circular F. W. Robinson
 Knitting-machine stop motion F. B. Wildman et al.
 Ladder, Aerial C. F. Kieser
 Ladder, Slidable-section step. G. W. Inebnit
 Lamp burner W. Colina
 Lamp burner J. Clifford
 Lamp extinguisher I. C. Bergen
 Lamp holder and reflector, Electric. L. M. Fluhart
 Lantern attachment W. W. Eastman
 Lavatory T. A. Legge
 Leather-rolling machine H. W. Winter
 Lens W. T. Coulson
 Lens, Fresnel W. Churchill
 Letter and document distributor. F. Bristow
 Life-saving device. E. E. Hills
 Lifting jack C. M. 2
 Light intensifier C. 2
 Line-casting machine P. T. 2
 Line-casting machine. G. P. K. 2
 Line-casting-machine slide-capturing mechanism W. F. 2
 Liquid-dispensing device R. A. 2
 Liquid-fuel furnace J. W. M. and M. M. 2
 Liquid-measuring apparatus. J. A. 2
 Liquid meter H. C. 2
 Liquids, Apparatus for controlling the delivery of. A. A. 2
 Lock A. M. 2
 Locomotive-brake-operating means, Automatic D. E. 2
 Locomotive tender J. B. 2
 Lubricant for wheels. L. D. 2
 Luggage, Carriage for hand. M. 2
 Mail-bag catching and delivering apparatus H. W. 2
 Manure loader J. Kulhanek
 Marker, Land (Reissue). G. B. Randolph
 Masonry, Heating apparatus for drying damp H. Geyer
 Mattress guard F. A. Palmer
 Measuring instrument. D. E. 2
 Meat-cutting machine J. F. Mayfield et al.
 Medicinal composition A. Viquerrat
 Metal article J. C. Russell
 Metal container T. J. Buckley
 Metal wheels, Apparatus for removing the projecting ridges from pressed R. Kronenberg
 Microscope stage, Mechanical. H. Hayes
 Mill, Ball F. E. Marcy
 Milling machine, Crank shaft. C. Overgaard
 Mining cage, safety catch. C. Methven
 Mining-machine bit J. J. Moore
 Mold S. E. Shafer
 Molding flask A. C. Mott, Jr.
 Mop H. L. Feasel
 Mop, Dust S. B. McHenry
 Motor I. Hurley
 Motor multiple control, Electric (2 pats.). R. Richter
 Mouse trap J. I. Brorby
 Mowing machine cutter-bar. A. D. Abbenzeller
 Necklace clasp F. X. Zirnklilton
 Nodulizing materials, Mechanism for L. P. Ross
 Nozzle, Spraying A. K. Dyke
 Nut and bolt lock I. L. Edwards
 Nut and bolt tightening machine. G. A. O'Connor
 Nut lock H. T. Hughes
 Nut lock C. J. Lantz
 Oil-burner heater, Hot-blast. R. B. Carter
 Oil-can holder C. W. Beck
 Oiler, Handsaw L. W. Garner
 Optical projecting apparatus. G. Appiani
 Optical system W. Churchill
 Orchard heater H. K. Fairall et al.
 Ore-washing apparatus. H. A. Brackelsberg
 Oven-closing means. H. Koppers
 Package seal W. W. Frieschle
 Packing, Shaft O. Dahlke
 Padlock, Permutation R. Drummond
 Pail H. L. Winslow
 Paper box, Folding. A. J. Vance
 Paper boxes, Die for making folding. R. J. Gruenberg
 Paper receptacle C. T. Bloomer
 Paper weight and automatic moistener, Combined L. F. Baum et al.
 Parachute A. O. von Augedz
 Parcel-elevator mechanism. H. L. Wilson
 Pen and pencil clip. W. Stone
 Pen-making machine J. F. George
 Pen, Writing G. B. Haug
 Perborates, Electrolytic manufacture of. K. Arndt
 Perforating machine C. L. Lilleberg
 Phonograph reproducer A. Luciano
 Photographic developing device, Portable. J. C. Oliver
 Photographs, cards, price tickets, &c., Easel or holder for. W. R. Clough
 Pictures, Shiftable screen for moving. F. W. Hochstetter
 Pile, pier, wharf, and like structure. R. Thomson
 Pin N. C. Wallenthin
 Pipe coupling, Automatic train W. D. Leftwich
 Pipe stock A. Gordon
 Pipe wrench R. L. Underwood
 Pistons, Safety device for fluid-actuated. W. B. Kollar
 Plane attachment O. S. Flanders
 Planter C. B. Thomas
 Planter attachment J. M. Baker
 Planter attachment W. O. Bostrom
 Plastic waterproof traveling composition, Pigmented A. C. Horn
 Playing ball A. T. Saunders
 Playing instrument, Automatic J. Schwertner
 Playing surface G. P. Jackson
 Plow H. J. Aune
 Plow, Traction S. Belanger
 Pneumatic-dispatch-tube carrier R. G. Collins, Jr.
 Pocket-books and the like, Germicide insert for J. H. Rand, Jr.
 Poke, Animal J. S. Murchison
 Pole tip H. W. Randall
 Polishing device C. F. Sperry
 Polishing wheel J. Joseph
 Portfolios and the like, Catch for. J. S. Isidor
 Pot-cover attachment C. A. Ford
 Pot cover, Cooking C. A. Ford
 Potato sorter sack-holder attachment. F. S. Fuller
 Printing apparatus. W. L. Noe et al.
 Printing-machine compensating and retrieving means R. T. Johnston
 Printing machine, Pencil. J. B. Scott
 Printing mechanism. B. F. Joline
 Prism, Refracting O. Eppenstein
 Prompter, Mechanical J. Durkin
 Propeller, Mechanical E. A. Richter
 Propeller G. Gays
 Pulverizer J. E. Blake
 Pump, Centrifugal (2 pats.). W. K. Richardson

- Pump W. Coyne
 Pump-priming mechanism C. S. Lewis
 Pump, Rotary R. M. Blackmer
 Pumping apparatus L. Willis
 Puzzle A. J. B. Clement
 Radiator valve W. Staby
 Rail chair and antispreading device, Combined S. N. Fraser
 Rails, Machine for working on compound J. Noll
 Railway crossing R. D. Millholland
 Railway switches, Circuit-controlling mechanism for electric C. W. Squires
 Railway tie S. Baughman
 Railway-tie renewer J. R. Smith
 Raking device, Cutter-bar J. J. Leach
 Ratchet wrench L. W. Hoover
 Razor guard W. L. King
 Razor, Safety M. C. Sharpneck
 Razor-strop-coating compound A. Zochling
 Razor-stropping and sharpening mechanism L. A. Flinker et al.
 Razor-stropping device J. Kebola
 Razor-stropping machine R. S. Otis
 Reclining chair F. Meyrose
 Recording apparatus T. D. McCall
 Rectal tube W. L. Shackelford
 Reduction or hydrogenation of organic compounds, especially the fatty acids and their compounds K. H. Wimmer et al.
 Refrigerating apparatus W. Cooper
 Refrigerator, Car G. E. Knepper
 Rein buckle, Cross T. J. Virtue
 Remedial appliance S. Quayle
 Resilient wheel J. R. Ayotte
 Resilient wheel W. J. Jones
 Resilient wheel R. B. and W. B. Gray
 Resistances, Casing for A. W. Berresford
 Reversing gear for engines W. A. Birchett
 Ribbon-bolt clasp B. Rosenfeld
 Ring setting R. Rosenthal
 Roasting furnace C. W. Renwick et al.
 Rock drill (2 pats.) E. M. Mackie et al.
 Rodent exterminator A. Bailey
 Roofing W. F. McKay
 Roofs, Bracket for use in shingling H. G. Rounds
 Rotary bit and holder, Hydraulic J. R. Myers
 Rotary drier L. F. Griswold et al.
 Roundabout R. G. Reeves
 Rounding and channeling machine A. Eppler
 Rounder lock K. Lund
 Rule, Slide R. C. Colwell
 Sad iron, Self-heating O. Spahr
 Salt of cholic acid, Strontium R. Werner
 Salts, Treating materials with solutions of titanous C. M. F. Schroeder
 Sand point P. E. Erickson
 Sand screen D. Reinert
 Sash fastener F. E. Slappey
 Sash fastener H. J. Martin
 Sash fastener, Window S. E. Driscoll
 Sash holder, Roller-bearing W. S. Scarbury
 Sash lock J. A. Giese et al.
 Saw D. R. Nelson
 Saw-filing machine W. T. Nelson
 Scale, Pocket postal H. A. Meyer
 Scale, Weighing G. Hutchinson
 Scenery apparatus, Stage F. W. Hochstetter
 Script holder, Railway G. H. Cleveland
 Search-light attachment for shotguns and the like E. S. Ward
 Section liner B. Silverston
 Sectional case, Knockdown O. B. Rowlett
 Separator N. C. Westerfield
 Sewage, Treating A. Priestman
 Sewed-article seam J. Barnett
 Sewing kit G. Walters
 Sewing machine C. T. E. Gould
 Sewing machine F. Ashworth
 Sewing machine J. Hayes
 Sewing-machine buttonhole-working attachment F. Spaulding
 Shade hanger, Adjustable window W. T. Valentine
 Shade holder A. C. Recker
 Shade, Window I. Nielsen
 Sheet-metal-working machine P. Kruse
 Sheet-sorting machine, Device for removing scraps of paper in G. Spiess
 Ship's log E. C. Ackers
 Shirt E. C. Roat
 Shock absorber G. C. Beck
 Shocking machine W. R. McMill
 Shoe and glove fastener J. W. Harmon
 Shoe-elongating implement, Portable H. E. Maine
 Shovel for stokers' use and other purposes C. A. Fell
 Shovel-handling extension G. Albert
 Shutter, Automatic fire-resisting E. H. McCloud
 Shutters, End member for the slats of fire W. M. Brunst
 Shuttle N. Terashima
 Sidewalk-construction mold J. W. Holman
 Signaling system, Wireless C. D. Ehret
 Signs, Circuit-controller for electric F. C. Brodie
 Sleigh runners, Means for attaching draft-bars to C. M. Erickson
 Smelting or refining of metals and the like in crucibles H. G. Solomon
 Smelting volatile metals, Electricity W. M. Johnson
 Smoke separator C. F. Holmes
 Snap fastener J. P. Williams
 Soldering chain C. A. Becker
 Soldering iron, Self-heating R. W. Marvell
 Sole-sewing machine A. Bates
 Solid balls, Making J. P. Appleby
 Sound box P. Catucci
 Sound box diaphragm P. Catucci
 Sound-reproducing machine stylus J. W. Owen
 Spear, Fish G. T. Turner
 Speed mechanism for motor vehicles, Variable J. C. Riegel
 Spool-unwinding device J. L. Walsh
 Spooling machine differential motion P. Grosser
 Spraying liquid into air, Device for G. A. Schuller
 Spring cover A. E. Peters
 Spring guard S. P. Wilbur
 Spring wheel A. Morgan
 Spring wheel F. W. Pramschuer
 Stair F. A. Winslow
 Stalk cutter R. A. Blunck
 Stamp feeding and affixing device H. Isselhorst et al.
 Stanchion G. G. Friberg
 Stanchion W. D. James
 Starting mechanism M. MacFarland
 Stay, Garment H. S. Brewington
 Steam-regenerative accumulator and water heater D. B. Morison
 Steaming and pressing machine, Garment C. B. Howe
 Steel, High-speed tool R. Becker
 Steel, Manufacturing G. H. Benjamin
 Steering gear W. Lund et al.
 Stock-salting device, Automatic J. I. Iblings
 Stop mechanism for power-driven machines, Automatic A. Vanderveld
 Storage battery A. H. Snyder et al.
 Store-service apparatus C. H. Miller
 Stove E. W. Anthony
 Strainer, Milk C. Ekvall
 Street-cleaning machine H. Carr
 Stropping machine L. A. Flinker
 Structure, Knockdown G. N. Barrie
 Stud fastener, Ear R. Tolchin
 Suitcase H. Burchess
 Suitcase alarm, Automatic P. H. Read
 Surgical instrument T. A. Hopkins
 Suspenders M. Bono
 Switch A. W. Johnson
 Switch lock O. M. Lockwood et al.
 Table ware C. F. Smith
 Tachometer A. Alleman
 Tanning material and making same M. Honig
 Tap T. F. Kean
 Tapping water mains under pressure, Apparatus for A. Fairfield
 Taping machine T. E. Raffel
 Tar and ammonia from coal gas, Recovery of C. Still
 Telephone exchange switching mechanism F. A. Lundquist
 Theater or the like chair A. Forster et al.
 Thermo-electric switch H. Gillette
 Thermometer L. E. Parliman
 Throat braces, Securing J. F. Gero
 Tie holder W. Radi
 Tile and plug fitting, Refractory H. H. Nevanas
 Time-recording mechanism C. E. Johnson
 Timer and distributing device J. M. Smith
 Tire, Automobile A. H. Fisher
 Tire, Automobile E. N. Breitling
 Tire-cushioning device J. E. Strong
 Tire-shoe-making machine C. A. Edmonds
 Tire, Vehicle C. F. Forster
 Tires, Grip-tread for vehicle C. J. Ohlsson
 Tires on rims, Device for building W. C. Stevens
 Tires, Rim for mounting pneumatic E. F. Dreger et al.
 Toaster, Electric A. A. Warner
 Tobacco pipe V. Simonin
 Tobacco pipe and the like cleaning device C. H. Haig
 Tonges, Clothes W. C. Dennis
 Tongue swing W. L. Buckner
 Tool hanger S. C. Barrett
 Tool holder V. R. Koontz
 Tool holder S. C. Barrett
 Tool holder, Universal P. E. Johanson
 Tool, Percussive (2 pats.) L. C. Bayles
 Toy J. W. Zimmerman
 Toy pistol G. C. Lasares
 Toy projectile E. Hackh
 Translucent panel for signs and ornamental purposes G. R. Meyercord
 Translucent panels, Producing G. R. Meyercord
 Tree prop, Fruit S. W. Glascock
 Tree prop, Fruit C. R. Thompson
 Tree surgery R. B. Sherman
 Trolley-wire clamp or fastening device G. A. Mead et al.
 Trousers and the like inflatable supporter H. Leap
 Truck H. H. Harris
 Truck E. M. Chapman et al.
 Truck and plow, Combined motor C. W. Clark
 Truck, Car E. Posson
 Truck construction (5 pats.) C. H. Howard et al.
 Truss T. Amendold
 Tube coupling S. G. Forst
 Tube-forming and sheathing apparatus F. N. Palmer
 Tubing, Manufacture of double helical metallic H. J. Davies et al.
 Turbine buckets, Machine for milling J. F. Lyons
 Turbine, Steam J. F. Metten
 Turbine, Steam S. C. Rockman
 Turpentine and rosin from wood, Extracting B. F. A. Saylor
 Type-casting and composing machine P. T. Dodge
 Type-writer attachment M. Aaron
 Type-writer, Pneumatic M. Soblik
 Type-writing machine L. H. Friedman
 Type-writing machine O. Petermann
 Type-writing-machine bar mechanism (2 pats.) O. Petermann
 Type-writing-machine keyboard O. Petermann
 Type-writing-machine stand H. Bates
 Umbrella J. W. Lewis
 Undergarment C. J. Baker
 Underreamer W. Wagner
 Vacuum alarm L. D. Copeland
 Vacuum cleaner, discharging device J. H. Templin
 Vacuum driers, Feeding material to and from F. J. Stokes
 Valve C. E. Trinder
 Valve J. F. Milton
 Valve for internal-combustion engines, Rotary M. G. Chandler
 Valve gear, Internal-combustion engine F. Lamplough
 Valve mechanism for engines E. Thomson
 Valve, Piston C. J. Barley
 Valve, Triple J. R. Snyder
 Vapor generator E. Seitz
 Vehicle antivibration device E. V. Hartford
 Vehicle body C. D. Orcutt
 Vehicle mounting A. A. Pratt
 Vehicle signal E. B. and G. E. Roedding
 Vehicle stop block H. Carduck et al.
 Vehicle storm J. B. Cretors
 Vehicle wheel S. A. Currin
 Vehicle wheel, Resilient L. H. Schoonover
 Vehicles and similar motor plants, Driving of motor R. Diesel
 Vehicles, Front wheel drive and steer for motor J. S. Rutkowski et al.
 Vehicles, Means for supporting engines in self-propelled W. E. Ver Planck
 Veil, Automobile M. Saltz
 Vending machine S. C. Jones
 Vending machine J. A. Webster
 Vending machine A. K. Collins
 Vending machine, Coin-controlled W. T. Foster
 Vibrator driving mechanism J. Vieson
 Vise, Pipe F. W. Hedden
 Wagon brake J. Gibbs
 Wagon cover, Removable C. H. Bigbie et al.
 Wagon, Dumping J. R. Steele, Jr.
 Wardrobe, Collapsible J. A. Hazzard et al.
 Washbench and ironing-board support, Folding combined C. Danielson
 Water-gauge-glass shield T. F. Carbery
 Water, Heating and purifying G. H. Gibson
 Water-tube boiler E. H. Wells
 Wave detector J. H. Cuntz
 Well aim pump, Deep W. L. Morrow
 Wheeling and edge-setting machine L. W. G. Flynt
 Window cleaner F. J. Steinhauser
 Window cleaner, Car J. W. Ruben
 Window ventilator F. Austin
 Window ventilator J. B. Sheridan
 Window washer G. Di Giovanni
 Wire stretcher J. E. Miller
 Wood, Apparatus for preserving G. B. Shipley
 Work-feeding mechanism L. H. Vold
 Wrench O. P. Case
 Wrench S. R. Audibert
 Zinc furnace with integral compound condenser, Electric J. Thomson
 Zinc furnace with integral condenser, Electric (4 pats.) J. Thomson

ISSUED DECEMBER 16, 1913.

MECHANICAL PATENTS.

- Abrasive-material-delivering apparatus C. C. McLean
 Acetylene generator A. F. Jenkins
 Adhesive plaster F. N. Lang
 Advertising device, Mechanical C. E. Cook
 Aerating solutions W. E. Darrow
 Aeroplane J. E. G. Alexander
 Aeroplane W. E. Shouler
 Aeroplane J. G. Hanna
 Aeroplanes, &c., Strut for G. R. E. Reimers
 Agricultural instrument W. H. Rice
 Air-brake applier, Automatic C. E. Hall
 Air-brake system G. Macloskie
 Air cooler A. Elson
 Air, Device for modifying the physical state of F. Berardi
 Alkali chromate solutions, Making J. H. Payne
 Amusement device, Public G. C. Rodock
 Anchor, Guy G. E. Beck
 Angle or miter clamp M. Joachimson
 Animals from burning structures, Means for removing C. Docherty
 Ankle support and protector H. J. Collis
 Annunciator H. D. Bostock
 Anticreeping device W. W. Holland
 Antiseptic container E. M. Doeringer et al.
 Apple sorter and cleaner J. A. Walters
 Arithmetical abacus J. M. de La Rosa
 Assembling mechanism E. P. Sheldon
 Automobile sanding device J. F. Williams
 Automobile self-starters, Automatic circuit-controlling mechanism for electrical W. A. Lurie
 Automobile signaling apparatus J. L. Cayer
 Awning arm F. A. Anton
 Axes or centers of circular bodies, openings, or plane figures, Device for finding the C. G. Lundstrom
 Bag holder O. Anderson
 Bag separating and feeding appliance J. S. Slosson
 Baling machine, Hay L. W. Palmer
 Balloon M. Vaniman
 Balloon building or covering apparatus M. Vaniman
 Balloons, Making M. Vaniman
 Balloting system W. F. Legg
 Bark-softening vat E. S. Connors
 Bearings, Lubricating bars for journal F. J. Randall
 Bed J. E. Webster
 Bed-bottom fabric G. A. Mellon
 Bed, couch-bed, &c., Sofa (2 pats.) D. F. Dyke
 Bedstead J. W. Vail
 Binder frame L. P. Dixon et al.
 Blasting cap and carrier therefor J. R. Powell
 Blind, Rolling E. Cahill
 Blinds, Stop and runner for rolling E. Cahill
 Boat A. Currie
 Boat attachment, Life C. H. Langill
 Boat for submarine vessels, Life G. Hilgers
 Bobbin stripper G. W. Ramsey
 Bodkin A. C. Gault
 Boiler feed purifier S. Bessonoff
 Boiler-tube cleaner J. F. Bailey
 Bolt and nut lock J. A. Hatter
 Boot and shoe-ironing machine J. S. Hansen
 Boot and shoe pull-on devices, Making E. C. Jacobs
 Boot and shoe pull-on devices, Making E. C. Beaumont
 Boring machine C. F. Penn et al.
 Bottle-capping machine J. F. Prosser
 Bottle closure F. E. Sanders
 Bottle, Non-refillable C. F. Davy et al.
 Bottle, Non-refillable F. Kuhles
 Bottle, Non-refillable J. H. Plaisted
 Bottle, Non-refillable W. E. Bailey
 Bottles, Nipple for nursing J. Pfeiffer
 Braiding machine S. W. Wardwell
 Brake mechanism H. C. Buhoup

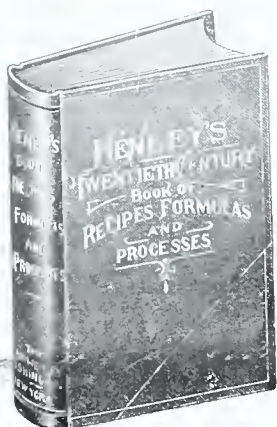
- Braking system, Electropneumatic W. C. Myers
 Brick kiln C. E. and J. S. Scholl
 Brooder J. A. Clark
 Broom or mop holder G. G. Hakes
 Brush, Fountain H. L. Larsen
 Brush-making-machine drilling and filling attachment K. Winkler
 Brush, Shaving E. Mentor
 Bucket-hoisting apparatus, Dipper A. W. Robinson
 Buckle, Trace and tug N. L. Anderson
 Building block S. Ranno fu Biagio
 Building construction C. J. Perkins
 Bullet, Mushroom T. C. Johnson
 Bundle carrier T. E. Somerville
 Burglar alarm E. C. and F. W. Bertagnoli
 Buttermilk cooler G. Viney
 Calculating machine E. Jahnz
 Calculating machine F. Trinks
 Can, box or the like opening device P. Scholz
 Can opener F. C. Wilson
 Can-top holder G. Geddis
 Caoutchouc and making same, Vulcanized F. Hofmann et al.
 Caoutchouc substance and making same F. Hofmann et al.
 Cap, Miner's D. E. Brubaker
 Car G. H. Forsyth
 Car construction G. H. Forsyth
 Car, Convertible R. W. Burnett
 Car-door lock M. Kriewitz et al.
 Car-door-opening mechanism, Freight W. W. Darrow
 Car fender, Street J. F. Guyn
 Car, Freight F. G. Miller
 Car indicator, Street H. Klarman
 Car roofs, Hood cap for outside metal D. Murphy
 Car stake R. P. Borga
 Car step and door, Folding A. V. Winegarten
 Car step, Supplemental N. A. Thomas
 Car, Stock H. H. Dudley
 Car wheel, Mine W. M. McCoy
 Cars, Device for replacing derailed A. F. Broderick
 Carbide with calcium cyanamide, Coating V. Imperatori
 Carburetor heating coil W. A. Erkenbrack
 Carpenter's gauge H. E. Haukom
 Carpet sweeper J. M. Spangler
 Carpet sweeper J. F. Evert
 Carrier screen W. E. Lobdell
 Carton H. De Smith
 Cash-register attachment J. G. Willich
 Cast iron, Removing sulphur from W. F. Prince
 Cattle guard G. N. Solomon
 Check-controlled device C. H. Simerson
 Chuck, Magnetic R. C. Patton
 Cigar holder M. S. Cole
 Cigarette case H. C. Pedersen
 Clasp F. Hirsh
 Cleaning device P. E. Fischer
 Closet-seat sanitary paper coverings, Machine for cutting and feeding O. M. Gilbertson
 Clothes-line support, Adjustable A. S. Erickson
 Clothes pin J. A. Mierzwik
 Clothes wringer J. F. Gubbins
 Clutch J. J. Gilmartin
 Clutch for speedometers and the like A. W. Wesslock
 Clutch, Friction J. E. Gilson
 Clutch, Friction L. A. Pagani
 Coin-controlled mechanism J. E. Allison
 Collapsible tube and the like closure H. M. Russell, Jr.
 Color screens, Manufacture of O. Spath
 Coloring matter, Brown sulphur J. Flachslaender et al.
 Coloring matter containing sulphur, Green J. Flachslaender et al.
 Composing machine, Typographical D. S. Kennedy
 Compression wrench W. H. Lutz
 Computing device C. D. Duffield
 Concrete flooring H. H. Dupont
 Concrete mixer G. F. Nyé
 Coop, Brooding C. Lyman
 Cork retainer O. B. Schellberg
 Corset S. A. Jenyns
 Cosmetic L. S. Penn
 Cotton-cleaning-machine feeding mechanism D. Parks
 Cotton extracting and cleaning machine B. S. Elliott
 Crate A. Hovorka
 Crucible G. N. Jeppson
 Cuff, Shirt G. W. Wood
 Cultivator A. A. and L. A. Nash
 Cultivator attachment W. H. Ledbetter
 Cultivator, Motor T. F. McGough
 Culverts, Fastening means for butt-joint metal J. H. Dean
 Currency or the like handling device W. Moore
 Current motor G. E. C. Rousseau et al.
 Current rectifier, Alternating E. J. Wiggins
 Cushion wheel E. H. Schur
 Cuspidor C. E. Hunt
 Cuticle clipper H. E. Eckler
 Cutting bit J. Olsen
 Cutting-off-machine feeding mechanism M. Meyers
 Cutting tools, arbors, chucks, collets, &c., Adjusting means for C. F. Heinkel
 Die stock C. T. Benson
 Dieing-out machine S. Keats
 Disconnecting switch, High-tension A. S. Kalenborn et al.
 Dispensing apparatus L. W. Luellen
 Display case, Watch B. A. Masson
 Display rack R. M. McCleary et al.
 Door fastener W. I. Randall
 Door holder W. O. Van Ormer
 Door holder and stop, Combined W. M. Valentine
 Door-operating mechanism, Dumping J. O. Neikirk
 Door stop W. Smith
 Door trap, Screen L. W. Critzer et al.
 Drafting instrument C. H. Little
 Drier O. S. Sleeper
 Drill bit, Rock-cutting W. E. Carr

- Drinking cup H. M. Russell, Jr.
Drinking-fount nozzle A. C. Brown
Dye, Blue sulphur A. Thaus
Dye, Catechu-brown sulphur J. Flachslaender et al.
Dye, Green sulphur J. Flachslaender et al.
Dye, Olive-green sulphur J. Flachslaender et al.
Dyeing and printing C. Mollenhoff
Dyestuffs and making same, Orange vat G. Eugi et al.
Dynamo, Ignition C. T. Mason
Egg lifter W. C. Sandmann
Egg-supporting device J. L. Shute
Egg-washing machine E. B. Cook
Elastic fabric W. Kops
Elastic webbing W. Kops
Electric apparatus, Vapor A. M. Jackson
Electric distribution system L. B. Jones
Electric-fixture support A. L. Freeman
Electric generator, Magneto B. P. and F. I. Remy
Elevator safety attachment H. J. Piepgras
Electric-light fixture L. Gudeman
Electric switch G. B. Thomas
Electrical conductors, Testing H. M. Friendly
Electrical system R. Varley
Electrodes, Making storage battery H. C. Hubbell
Elevator, Automatic plunger D. F. Morton
Elevator, door operating and locking device W. J. Stilling
Elevator safety device A. Kalnasi
Embroidering machine, Automatic K. Eggart
Emery-wheel bench grinder J. F. Pribnow
Engine cooler, Explosive W. Woodward
Engine primer F. Fagerberg
Engine-priming attachment, Explosive W. Jay
Engine self-steering mechanism, Traction L. E. Youngquist
Engine starter, Internal-combustion S. G. Berry
Engine-starting device, Internal-combustion A. P. Foster
Engines, System of gas distribution for internal-combustion W. R. McKeen, Jr.
Engraver's transfer device I. N. Cassidy
Etching machine E. Albert
Etching process E. Albert
Excavating machine, Portable J. H. Carr
Excavator L. A. Krupp
Exhaust silencer W. H. and O. C. Unke
Explosion motor, Two-cycle J. D'Harvey
Eyeglasses N. M. Baker
Fastening device, Adjustable H. C. Hazard
Fence post E. H. Lehrke
Fender L. R. Flint
Ferrotungsten, Dephosphorizing F. M. Becket
File E. A. Dunn
Film pack J. E. Pettibone
Filter and faucet, Combined self-cleaning H. Alsterberg
Filtering apparatus for laboratory use P. A. Boeck
Fire alarm W. W. Mitchell et al.
Fire escape H. Croteau
Fishing-line-drying reel C. M. Covington
Flash-light apparatus T. E. Halldorson
Fluid engine, Elastic W. A. Godfrey
Fluid-pressure brake G. Oppermann
Fluid-pressure-maintaining system F. H. Dukessmith
Flushing mechanism, Closet A. M. Houser
Fly-destroying device O. E. Chapman
Flying machine C. F. Jenkins
Flying machine O. Shumate
Food articles, Means for protecting A. Yolin et al.
Form, Adjustable garment J. Satin et al.
Form, Dress C. R. De Bevoise
Fowl-decapitating device H. T. Swanton
Fowl decapitator U. S. Michael
Fraud preventer C. H. Simerson
Fuel mixture G. E. Heyl et al.
Furnace A. Mt. Joy
Furnace R. D. McManigal
Fuse-cap protector R. C. Miller
Garments and the like, Adjustable connection for H. C. Hazard
Gas engine B. M. Aslakson
Gas-mantle mica cylinder, Inverted A. P. Storrs
Gas-washing and cooling method and apparatus E. F. Lloyd
Gate G. W. Miller
Gate N. Early
Gearing (2 pats.) A. P. Willis
Gearing, Friction C. N. Whipple
Glazed refractory article A. T. Malm
Grading, stamping and selecting machine H. C. Brown
Grate bar G. S. Sergeant
Grating, lattice structure, or the like C. Wellen
Grinding mill J. D. Moore
Hair curler H. N. Northrop et al.
Hammer drill A. H. Taylor
Handle fastening F. D. Moss
Harrow L. E. Waterman
Harrow disk D. W. Boyce
Harrow, Lister J. Kiel
Harvester, Beet M. Van Voorst
Hat attachment W. D. Reese
Hat card holder A. M. Shive
Hat fastener A. Homberg
Hat-pin guard B. V. Chapman
Headlight, Dirigible B. F. Moye
Heater C. H. Hook
Heating apparatus F. Craig
Heating element, Electric A. A. Warner
Heating system, Steam J. G. Midgley
Heel-attaching machine E. A. Tripp
Heel for boots and shoes, Spring P. Gaspar
Heel, Pieced A. Gieger
Heel protector, Shoe F. S. Tucker et al.
Hide stretcher W. C. Davis et al.
Hinge, Spring W. J. Keene
Holder J. Macdonald
Horseshoe T. C. Amoth
Horseshoe ice creeper F. F. and M. S. Jacobs
Hose coupling E. H. Gold
Hose nozzle and lawn sprinkler, Combined C. G. Mohl
Hub odometer C. H. Veeder
Ice-cream freezer E. Thompson
Illuminating device R. K. Witz
Incubator egg tray F. Geiger
Indicator S. Larson
Inhaler, Nasal W. A. Johnston et al.
Ink-fountain-roller lifter W. Eben et al.
Internal-combustion engine W. C. Carter
Internal-combustion engine, C. De Lukacsevics
Iron, blast-furnace, flue-dust, Utilizing R. Baggaley
Jaw brace A. R. De Pass
Kerosene tins and the like, Handle for J. H. Tink
Key carrier A. Reznicek
Key-duplicating clamp H. Tucker
Key-duplicating machine H. Tucker
Kneading machine-operating mechanism, Dough F. Munz
Knife and scissors sharpener W. P. Gray et al.
Knitted web and making same R. W. Scott
Knitted web, Welted R. W. Scott
Knitting machine H. D. Shimer
Lamp, Acetylene S. E. Trisler
Lamp adjuster, Automatic L. M. Evans
Lamp receptacle, Incandescent-electric J. S. Crossley
Lantern J. R. Cravath
Lasting machine E. A. Stiggins
Lathe, Automatic turret W. L. Miller
Lathe relieving attachment A. M. Sosa
Leather-rolling machine H. W. Winter
Life buoy M. F. Matlack
Life preserver A. Sommerfeld
Life-saving suit J. P. Park
Line-casting machine R. O. Boardman
Liquid separator C. H. Hapgood
Loading and dumping device L. E. Renney et al.
Locomotive F. J. Doyle
Locomotive, Compressed-air J. A. Forsyth
Locomotive-inspirator attachment W. H. Gardner
Log-raft cradle P. F. Dundon
Logging-car chain release J. Dodd
Loom feeler motion J. Hendry
Loom for weaving bags, &c. S. S. Jackson
Loop attachment, Adjustable H. C. Hazard
Lubricant distributor W. H. Youtsey
Lubricating cup for wagons G. E. Marbel
Luggage carrier F. G. Parker
Mail-bag receiving and delivering apparatus H. J. Hedrick
Mail-bag-transferring device D. F. Keller
Mail box T. B. Hyatt
Mail carrier, Automatic J. M. Schwendeman
Mantle protector W. H. Hoffstot
Map-rolling and reversing device F. E. Wilson
Marble-surfacing machine C. H. Jordan
Mask, Base-ball R. L. Welch
Massage paddle J. Bauks
Match safe O. Rison
Matches in boxes, Packing apparatus for machines for packing H. A. Gsell
Measure, Tailor's L. Alfano
Medicinal preparation (2 pats.) P. Ehrlich et al.
Metal-reinforcing structure and producing same, Expanded B. Wolhaupter
Milk-separating machine, Centrifugal S. C. Hauberg
Milk, Sterilizing C. E. Bonine
Milling machine G. W. Smith
Mining machine H. B. Dierdorff
Moistening machine C. H. Crowell
Moistening machine, Label J. F. Hancock et al.
Molding machine I. M. Newman
Molds, Pattern and chaplet therefor for producing J. A. Field
Mole trap J. C. Barker
Mop C. A. Kelly
Motor control, Alternating current D. Larson
Motor or the like starting device, Electric W. Griebel
Mowing machine G. Wilson
Muffler cut-out R. L. Hubbard
Music-tracking device, Sheet C. Bergland
Musical instrument J. Schwertner
Nest front, Poultry-trap W. F. Mahony
Nest trap C. L. Grant
Nozzle, Spraying H. W. Grann
Nut, Lock F. A. Wittich
Nut lock H. Hall et al.
Nut lock R. Mulon
Nut lock C. M. Siever
Nut lock L. C. Dashner et al.
Nut lock J. R. Hipsley
Nut lock E. J. Fillingim
Nut, Self-locking E. E. Maher
Oil press M. B. Green
Oils and fats, Obtaining sulfonated R. Russ
Oils, Treating petroleum or other hydrocarbon S. Wohle
Ore-concentrating machine G. W. Arnold
Ore separator C. H. Brown
Ore-treating apparatus D. C. Reinohl
Ore-treating furnace J. A. Frey
Ores for separating precious metals, Treating D. C. Reinohl
Oven K. Webb
Ozonids and their production, Gaseous W. J. Knox
Packing case G. Klenk
Packing machine J. Hochenauer
Padlock P. S. Wiseman
Padlock R. A. Borsky
Paper-bag machine W. A. Lorenz
Paper-box-maker's gauge L. E. Marchese
Paper rolls, Machine for making toilet H. Liebeck
Paper-winding mechanism S. Waring
Peauut picker and stemmer H. W. Eisenhart et al.
Pen, Fountain W. W. Sanford
Penholder, Magazine S. O. Boyd
Phonograph P. Weber
Phonograph F. L. Dyer
Photography, Making party-colored screens for use in color C. L. A. Brasseur
Piano F. A. Knight
Piano-player paper-feed-controlling apparatus E. R. Philblade
Piano, Pneumatic C. Freborg
Pianos, Valve for player C. V. Jameson
Picker stick E. Chevette
Pins, Making platinum-covered C. H. Kerk
Picture-machine magazine, Moving W. A. Dietze
Picture projecting apparatus, Moving H. L. Fritz
Pipe fitting, Soil S. M. Smith
Pipe jack or holder J. Peterson
Pipe or rod cutter G. Mullins
Pipe-ripping machine C. G. Naylor et al.
Pipe stem C. D. Hill
Pipe-threading and cutting machine F. H. Sampson
Pipe, tube, &c., expander H. G. Gillmor
Pivot connection J. S. Davis
Planter, Combination F. A. Toney
Plaster and similar materials, Composition of matter for W. W. Baker
Pliers, Cutting (Reissue) W. A. Bernard
Plow E. M. Heylman
Plow attachment, Stalk-cutting N. W. Sumrail et al.
Plow, Gang O. Carlson
Plug, Attachment A. M. Bradley
Pneumatic-dispatch-tube apparatus E. A. Fordyce
Polishing machine D. E. Bigelow
Porous article P. A. Boeck
Post puller E. Duda
Power and speed gear for transmission, Mechanical variable A. Sundh
Power-transmitting mechanism A. J. Schroeder
Pressure controller, Electric pneumatic E. K. Parker
Printing press C. H. Bright, Jr.
Printing-press attachment H. M. Bullis
Printing-press tripping mechanism R. Miehle
Projection apparatus C. C. Balderston
Propeller S. Heath
Pulp feeder T. F. Harkins
Pulverizing mill B. A. O'Neill
Pump and engine, Combination W. B. McLane
Pump, Automatic G. J. Spohrer
Pump, Centrifugal D. L. Dodge et al.
Pump, Measuring E. R. Deming
Pump, motor, and like apparatus, Hydraulic R. F. Carey
Punching die E. E. Roberts
Punching, riveting, shearing, and other machines, Spacing device for J. K. Graham et al.
Quebracho, Treating J. M. Fiske
Radiator for clothes-drying apparatus, Sectional C. L. Esterly et al.
Rag-tearing machine and fiber-opener and the like A. Snowden
Rail joint E. C. Wiley
Rail joint and fastener B. F. Gilbert
Rail-supporting and fastening device D. L. Braine
Railway and the like point lever A. Vellere
Railway crossing D. H. Mahoney
Railway derailer C. T. Martin, Jr.
Railway ditching machine H. F. Sink
Railway draft rigging G. H. Forsyth
Railway-rail tie and fastener F. Holik
Railway signal device H. L. Craig
Railway signaling system A. V. T. Day
Railway tie E. Fritsch
Railway tie, Concrete J. F. Schomer
Razor, Safety (2 pats.) F. D. Jones
Refractory composition G. N. Jeppson
Refractory materials, Preparing billets of H. D. Madden
Refrigerator and the like, Partition G. F. Wittkopf
Restaurant equipment L. E. Zerbe
Reversible motor, Automatic J. McKenney
Riveting machine, multiple drive A. R. Havener
Rock-drill chuck F. Franz et al.
Rod connection L. H. Nash
Rubber-vulcanizing apparatus R. B. Price
Sample case having link-connected trays W. Schweitzer et al.
Sand-cutting and riddling machine J. F. Brien et al.
Sand-blast machine C. F. Motz
Sash lock J. Larsen
Sash lock I. L. Dempsey
Satchel, cart, and camp stool, Combination H. H. James
Saw cutting-off machines, Interlocking mechanism for cold M. Meyers
Saw jointer F. M. Barnard
Saw mill, Twin band C. E. Cleveland
Scales, Bag-holding device for S. Kneeland
Scales recording attachment R. E. Hart
Screw driver J. H. Shaw
Scriber J. A. Koehl
Seal-assembling machine, Bottle A. K. Keller
Sealed jar, Liquid W. N. Moore
Sealer, Bread wrapper F. Streich
Sealing machine, Bottle A. A. Rosengren
Seam ripper, Safety C. C. Woodworth
Seed grains, Compound for protecting planted L. E. Hanczewski
Seeding apparatus A. T. Button et al.
Selector mechanism E. B. Craft et al.
Self-cleaning drill R. Binnie
Self-leveling table C. A. Smith
Settling tank and filter, Combined D. C. Reinohl
Sewer cleaner and flusher H. A. Goetz
Sewer-cleaning device E. B. Culver
Sewer trap H. C. Williams
Sewing and trimming machine J. P. Weis
Sewing machine F. N. La Chapelle
Sewing machine K. von Korytynski
Sewing machine feeding mechanism L. Krug
Sewing-machine presser foot A. H. De Voe
Sewing-machine thread controller J. S. Finch
Shade holder N. Krohn
Sharpening device F. Varga
Shoe M. Langerak
Shoe horn J. D. Lane
Shutter-closing device, Window G. W. Lancaster
Shutter fastener D. S. Lagrasse
Shutter-operating means, Exposure P. J. Mukautz
Shutter worker, Automatic B. A. Proctor
Sifter A. Weber
Sign, Illuminated R. R. and W. K. Wiley et al.
Sign structure, Reversible C. B. Mohr
Signaling system, Electrical H. B. ...
Signature gatherer H. K. ...
Silo door C. ...
Sink stopper G. ...
Smelting furnace K. O. E. O. ...
Smoke consumer
Socket, Combination slip W. S. ...
Sole-laying machine E. L. ...
Sound muffling device
Sound-producing means, Electrical
Sound reproducing or transmitting instrument tone-clarifying attachment C. S. ...
Spark plug G. L. ...
Spark plug W. L. ...
Speed-controlling apparatus J. T. ...
Speed governor L. Rhodes
Spinning or twisting machine gearing S. B. Roy
Spoon, Hypodermic T. H. Forster
Spraying apparatus, Shoulder-bag water D. W. Adams
Spring wheel A. Laurencich
Stamp J. H. Matthews et al.
Stay-strip-preparing machine C. H. Crowell
Steam engine W. H. Sullivan
Steam for industrial purposes from prime movers, Means for supplying L. Sanders
Steam-generating apparatus J. B. Pentz
Steam trap E. S. Caldwell
Steamship W. Hargrove
Steel products, Manufacturing silicon O. H. Cunningham
Steel, Purifying E. Humbert
Steering mechanism W. S. Hall
Stone-cutting machine P. Burger
Strainer J. C. W. Schopke
Street sweeper W. C. Niemann
Stud, Collar M. Auerbach
Surgical appliance M. Iversen
Switch H. L. Kirkpatrick
Switch stand and lock A. E. Kalschmidt
Tack-driving machine F. L. MacKenzie
Tanks, Operating setting A. Potter
Tape W. L. E. Keuffel
Target, Sighting F. Higgins
Telephonic apparatus key construction and release W. P. Andrick et al.
Tempering vat A. T. Upton
Tent W. H. Richling
Tent frant R. B. Fowzer
Tent, Hanging C. B. Avery et al.
Textile machine T. E. Bingham
Thermopile W. W. Coblenz
Time switch W. E. Porter
Tire and rim, Wheel J. B. Crawford
Tire, Cushion C. E. E. Bright
Tire, Cushion J. A. Mollitor
Tire for vehicles, Cushion J. Seidler
Tire, Pneumatic J. J. Luck
Tire protector, Automobile F. Persic
Tire, Vehicle A. S. Richardson
Tires, Cushion element for resilient C. E. Bright
Tobacco-handling implement E. Norbo
Tobacco-plug extractor B. T. Sublett
Tool E. C. Shaw
Tool, Percussive L. C. Bayles
Tooth, Interchangeable artificial J. W. Ivory
Tooth-powder container W. G. Steadman, Jr.
Track cleaner J. H. Haller
Traction system, Electric L. B. Stillwell et al.
Tree protector W. Barrott
Trigger mechanism for automatic or self-loading smallarms P. Mauser
Trolley G. O. Burwell et al.
Trolling device T. W. Jordan
Truck, Locomotive A. F. Batchelder
Truck, Railway-car (2 pats.) W. F. Richards
Trunk binder W. I. Bray
Tube-slicing device, Elastic E. A. Franklin
Tube-winding machine J. Nazel
Tungsten and alloys thereof, Preparing (3 pats.) F. M. Becket
Tungsten ores, Treating (2 pats.) F. M. Becket
Tunneling machine H. H. Born et al.
Turbine system (2 pats.) W. Kieser
Tweezers, Watchmaker's H. E. Holloway
Type-writer line-spacing mechanism J. E. Molle
Typographical machine D. S. Kennedy
Undergarment, Union F. C. Rickert
Valve A. C. Murphy
Valve G. H. Hyndman
Valve, Automatic cut-off W. B. Ford
Valve device, Pressure-retaining W. V. Turner
Valve, Flush (Reissue) W. R. Willetts
Valve for internal-combustion engines, Auxiliary air R. Saunders
Valve, Internal-combustion engine O. A. Morris
Valve or disk form, Automatic S. E. Alley et al.
Vanner G. F. De Wein
Vase, Fountain W. F. Glassco
Vehicle J. W. Drew
Vehicle brake R. H. Maxfield
Vehicle gear L. E. Hickok
Vehicle starting mechanism, Motor R. Huff
Vehicle wheel A. R. Weaver
Vehicle wheel P. B. Donahoe
Vehicle wheel S. T. Kronenberg
Vehicle wheel, Resilient F. A. Pearl
Vehicle wheel, Spring C. Warwick
Vehicles, Battery-supporting cradle for S. G. Thompson
Vending-machine coin mechanism H. Pein
Vermin trap C. Celene
Vessel construction G. W. Watts
Veterinary-file holder S. B. Dunn
Voting-machine voting mechanism C. C. Abbott
Vulcanizing device H. Giusti
Wagon bolster C. Tramel
Washing-machine-actuating mechanism C. M. Dumond
Waste burner and incinerator C. A. Raggio
Water coil R. F. Reed
Water heater and garbage burner, Combined H. Sims
Weed cutter W. M. Broady
Weed cutter C. E. Jones
Weeder and soil-pulverizer J. S. De Long

The Most Valuable Techno-Chemical Receipt Book Published

Henley's Twentieth Century Book of RECIPES FORMULAS AND PROCESSES

Edited by GARDNER D. HISCOX, M. E.



Price, \$3.00 Cloth Binding \$4.00 Half Morocco Binding

800 large Octavo (6 x 9½) Pages.

Contains over 10,000 Selected Scientific, Chemical, Technological, and Practical Recipes and Processes, Including Hundreds of so-called Trade Secrets for every business.

To present here even a limited number of the subjects which find a place in this valuable work would be difficult. Suffice to say that in its pages will be found matter of intense interest and immeasurable practical value to the scientific amateur and to him who wishes to obtain a knowledge of the many processes used in the arts, trades and manufactures, a knowledge which will render his pursuits more instructive and remunerative. Serving as a reference book to the small and large manufacturer and supplying intelligent seekers with the information necessary to conduct a process, the work will be found of inestimable worth to the Metallurgist, the Photographer, the Perfumer, the Painter, the Manufacturer of Glues, Pastes, Cements, and Mucilages, the Compounder of Alloys, the Cook, the Physician, the Druggist, the Electrician, the Brewer, the Engineer, the Foundryman, the Machinist, the Potter, the Tanner, the Confectioner, the Chiropodist, the Manicure, the Manufacturer of Chemical Novelties and Toilet Preparations, the Dyer, the Electroplater, the Enameler, the Engraver, the Provisioner, the Glass Worker, the Goldbeater, the Watchmaker and Jeweler, the Hat Maker, the Ink Manufacturer, the Optician, the Farmer, the Dairyman, the Paper Maker, the Wood and Metal Worker, the Chandler and Soap Maker, the Veterinary Surgeon, and the Technologist in general.

Among the Recipes given are:

Bleaching, Etching and Engraving
Recipes for Glass Making, Paper Making
Recipes for Ointments
Mirror-Making Formulas
Paint Making Formulas
Gilding and Galvanizing Recipes
Bronzing, Tinning and Silvering Recipes
Recipes for Adhesives
Plating and Enameling Recipes
Cleaning Processes, Soap Making
Leather and its Preparation
Recipes for Alloys, Recipes for Solders
Photographic Formulas
Shoe Dressing and Stove Blacking Recipes
Rust Preventive Recipes

Recipes for Lubricants and Oils
Recipes for Dyes, Colors, and Pigments
Recipes for Dryers and Inks
Recipes for Artificial Gem Making
Jewelers' and Watchmakers' Recipes
Household Formulas
Waterproofing, and Fireproofing Recipes
Recipes for Cements, Glues, Mucilages
Recipes for Fireworks
Alcohol and its uses
Recipes for Essences and Extracts
Dentifrice, Cosmetic, and Perfume Recipes
Tanning Recipes
Metallurgical Formulas
Hair Restorers, and Depilatories

And many thousands more—Equally Important in the Arts and Manufactures

Address: THE INVENTIVE AGE Publishing Co., Washington, D. C.

A GREAT BARGAIN \$1.75 Value for \$1.00

One Year's Subscription for McCall's Magazine, Any 15-Cent McCall Pattern you may select, One Year's Subscription for The Inventive Age.

ALL FOR ONLY



\$1.00



McCall's Magazine

Is a large, artistic, handsomely illustrated hundred-page monthly magazine. It contains sixty new Fashion Designs in each issue. Every woman needs it for its up-to-date fashions, entertaining stories and complete information on all home and personal topics. Over one million subscribers. Acknowledged the best Home and Fashion Magazine. Regular price, 5 cents a copy. Worth double.

McCall Patterns

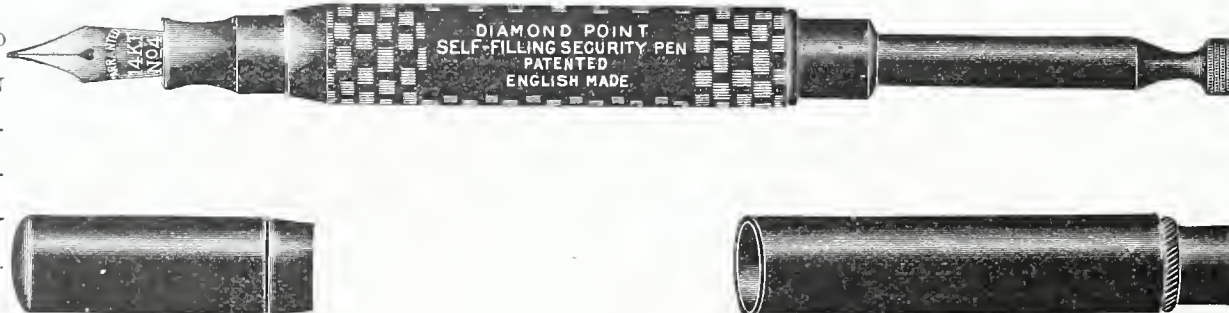
Are so simple you cannot misunderstand them. Absolutely accurate. In style, irreproachable. You may select, free, any McCall Pattern you desire from the first number of the magazine which reaches you. Regular price, 15 cents.

The Inventive Age.

A journal of manufacturing industry and scientific progress. The indispensable paper for patentees. Contains matter and information not found elsewhere. Regular price, \$1.00 per year.

The DIAMOND SELF-FILLING AND SELF-CLEANING Fountain Pen.

IT IS AWAY AHEAD
OF ANY OTHER PEN
MANUFACTURED BE-
CAUSE OF ITS SELF-
FILLING AND SELF-
CLEANING FEATURES.



No Soiled Fingers.

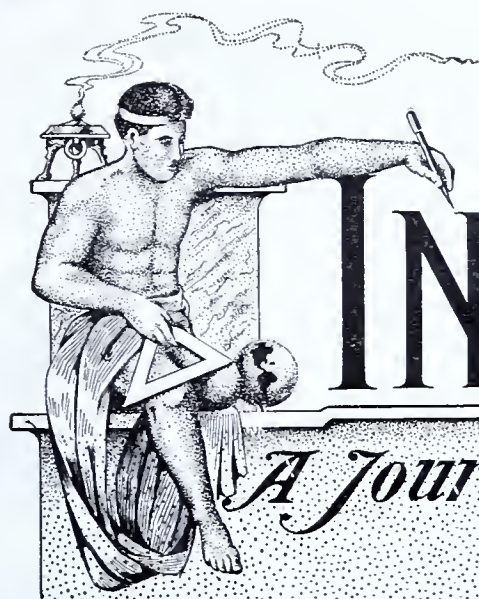
No Lost Time.

Price \$2.00.

Including one year's subscription to "The Inventive Age."

Address: INVENTIVE AGE PUB'L. COMPANY, WASHINGTON, D. C.

SEND FOR OUR FREE CATALOGUE OF BOOKS FOR
INVENTORS AND MECHANICS.



PROPERTY OF THE
TENNA. STATE LI
NOT TO BE TAK
THE LIBRARY.



The INVENTIVE AGE

A Journal of Manufacturing Industry and Scientific Progress.



VOL. XXVI. NO. 4. }

WASHINGTON, D. C.--APRIL, 1914.

Single Copies 10 CENTS.
ONE DOLLAR A YEAR.

UNIQUE LAUNDRY DRYING SYSTEM.

By FRANK C. PERKINS.

THE accompanying illustrations show the design and method of operation of a novel automatic laundry system for continuously drying collars, cuffs and shirts. A temperature of 230 to 240 degrees Fahrenheit is obtained in a two loop conveyor room, nine feet 6 inches deep, which automatically dries 14 collars per minute or 840 per hour.

Linen in the open air on a hot summer day, with no circulation, will not dry as rapidly as linen on a cold

was a big saving, and no up-to date laundryman would entertain the idea for a moment of going back to the old way.

It is claimed for this new system that there is an opportunity of saving more by quite as practical a method. This dry room arrangement uses the heat over and over, instead of wasting it. In the illustration (Fig. 2) showing the front of the conveyor dry room removed, it will be seen that in the chamber where the linen is dried, there

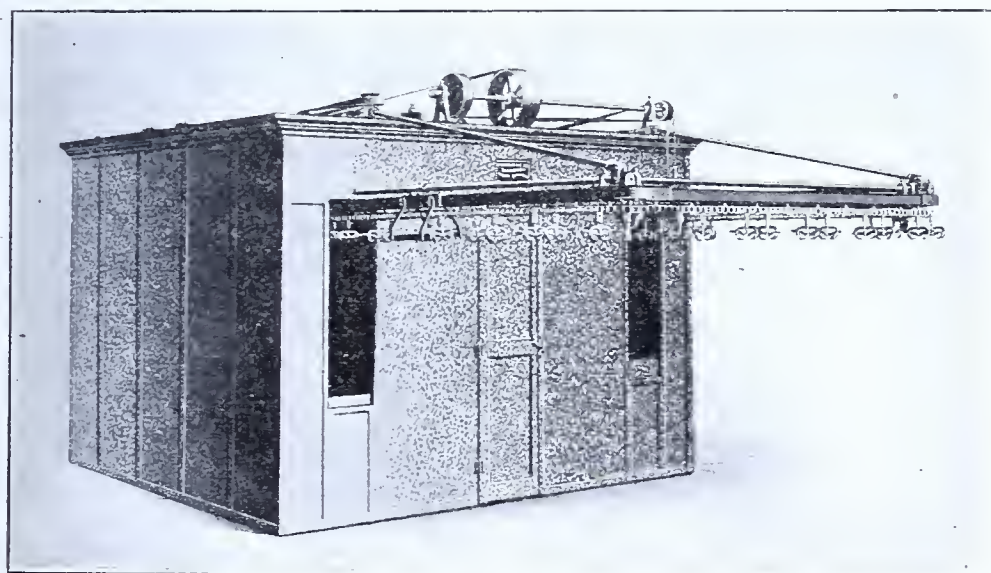


FIG. 1.—A NOVEL AUTOMATIC LAUNDRY DRYING ROOM.

winter day with circulation of air. At one time laundrymen wasted the steam condensed from ironing and drying machines. An increase in the price of coal made them resort to various appliances to cut down the operating cost. This was made possible by using the condensed or used steam over and over again, by returning it to the boiler at high temperature. It did not require as much fuel to generate dry steam from the partly used steam, as from cold water. The result

are no coils, so there is nothing to interfere with the circulation of the air in the chamber.

The radiators, more commonly known as coils, are enclosed in two metal chambers, one at each side of the room, and the pipes of the radiators are vertical. The best heat is of course generated at the top of the radiators. At the extreme top of these pipes and the chamber are placed ball-bearing suction fans, which suck the dry heat away from the chamber and push it

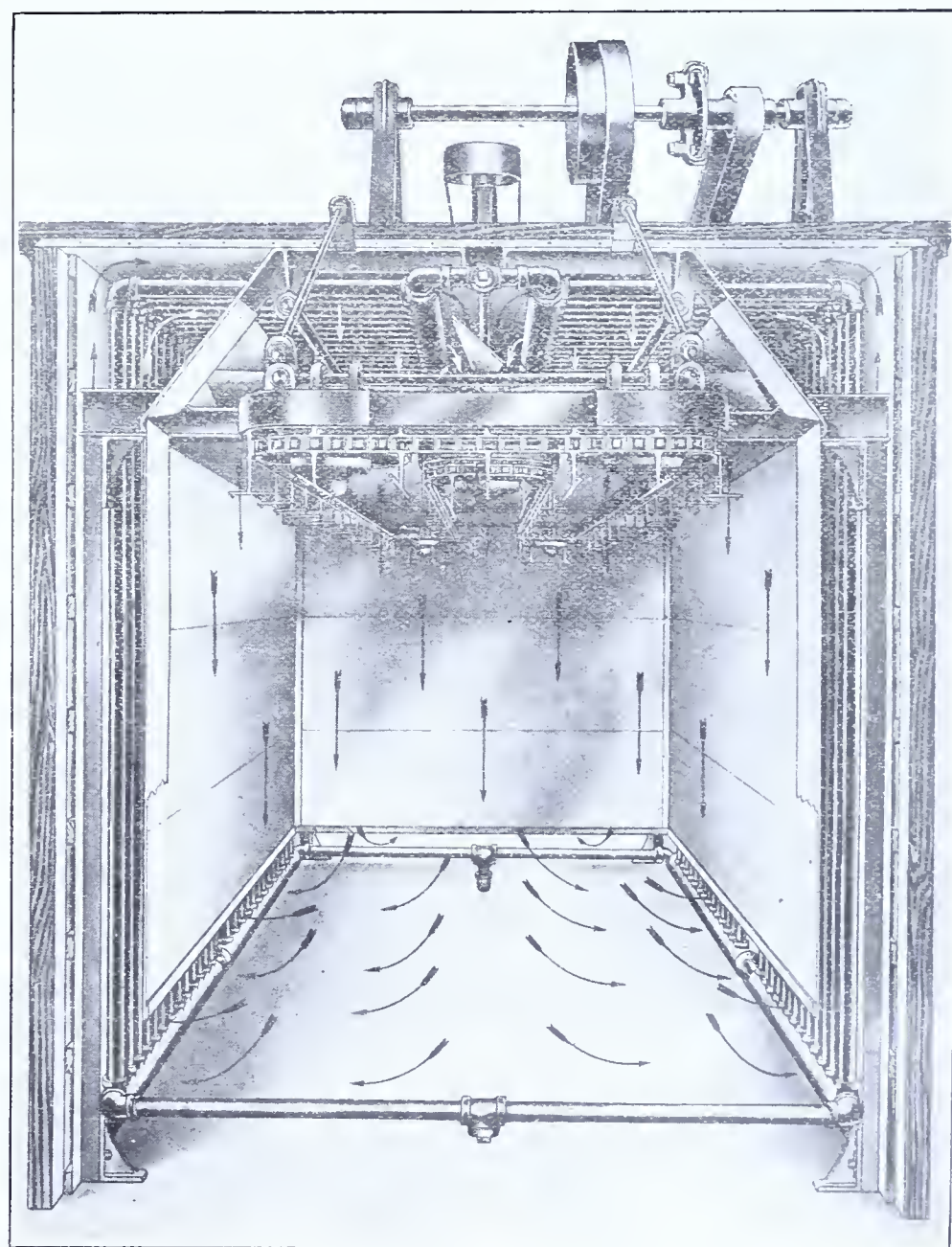


FIG. 2.—CONVEYOR DRYING ROOM WITH FRONT REMOVED.

down into and through the linen being dried, until it comes within the zone of the opening of the heat generating chamber, where it is sucked in to replace continuous discharge, and reheated.

These conveyor dry rooms have

outer cases of either California Redwood or of metal. They have from two loops to five loops and are sometimes built in tandem, but this arrangement is not necessary. By the system of circulation used, the moist air is reheated and used again, which is far

more economical than the discharging of moist air and the heating of cold air. Previously, dry rooms had no way to care for moist air, making it necessary to supply two rooms in tandem so that linen in leaving the first cabinet, which is filled with moist air, might travel into a second cabinet for final drying.

In the construction of the dry room, heavy channel uprights with cast iron girders are bolted together and support the entire weight of radiators, track chain, hangers and driving mechanism, thus relieving the outer case of all weight and strain. A track of large diameter double rollers is used to carry the chain, in this way insuring smooth, easy running. The chain and hangers are made of the best grade of malleable iron, heavily tinned. There are various types of hangers, for collars, cuffs and shirts, or rough dry pieces as may be desired, all being simple, and of strong construction, and the stripper for any type being positive and working smoothly.

It is stated that the chain is equipped with a device which automatically takes care of expansion and contraction, and a simple friction clutch prevents the chain from breaking when subjected to any unnatural strain. Bevel gears are used to drive the chain, in ball-bearing races, thus economizing power.

The radiators are of a quick gravity type, having two large headers at the top of the cast iron girders. These headers or manifolds have an even distribution of steam. From these headers there are fifty two $1\frac{1}{2}$ inch pipe size openings, twenty-six facing towards each side of the cabinet. From these openings extend $\frac{1}{2}$ inch pipes to the side walls. Right and left elbows are used to connect these pipes to the vertical pipes, that are connected into two large headers or manifolds, that are about four inches from the floor and are supported by brackets. These headers are arranged so as to have an even discharge of condensation of the traps, or whatever system may be used in the laundry. The proper construction of radiators eliminates air and water pockets, found in the so-called coils that run horizontal or lie on the floor.

The diaphragms are made of galvanized iron and are fastened to the iron truss work and extend to within sixteen inches of the floor and six inches away from the walls of the cabinet, forming flues in which the radiators are located. At the top of the diaphragm are located deflectors that conform to the radius of the six-bladed ball bearing fans. These fans suck or draw in the dry heat that is between the diaphragm and the cabinet walls, and discharge and force it into and through the linen being dried, not around it, as is done by the circulating fans found in the ordinary conveyor dry rooms. After the heated air is forced through the linen and becomes moist, it goes to the bottom of the room, and is again drawn into the flues, passing upward and around the gravity radiators, thus being reheated and used over and over again. This condition eliminates the necessity of building the room tandem so as to get the desired results.

It is claimed that this diaphragm device eliminates all the known troubles of drying in the conveyor dry room. It causes the heat to be uniform and the temperature of the heat to be the same in all parts of the room, making a condition that will dry both sides of collars or linen uniforms and eliminating the baking of the linen and preventing the side of the collar or other piece of linen, that faces toward the radiator, from turning yellow.

DELAYED APPLICATIONS FOR PATENTS.

What is meant by a "delayed application" may not be clear to all our readers. We will explain. Under the statute an applicant is given one year in which to respond to an Official action made by the Patent Office on his application for patent. Some attorneys answer within a few weeks, while others, acting under instructions from their clients, or following their own inclinations, wait until the last day of the year counting from the date of the Official action, and then file an amendment or argument.

Where an inventor or his attorney starts out with the deliberate intention of delaying the issuance of the patent, it is possible, by constantly inserting new claims, to keep a case pending for many years. To do this, it is only necessary to take care that the Official action be responded to within the year, and that the requirements made by the Patent Office in the Official letter are fully complied with. The Patent Office might act with reasonable promptness on each communication filed by the applicant or his attorney: say, within one to three months, but the attorney by waiting a year to reply to the Official action, would thus gain a period varying from thirteen to sixteen months by each Official action and amendment. Where the amendments and Official actions are multiplied, five or ten years may roll around without the application having made any progress towards allowance.

Of course, where an applicant or his attorney is desirous of expediting the grant of a patent, no such delay is necessary. As stated by the Commissioner of Patents in his last report to Congress:

"On an average applications are in the Office two years, and in the vast majority of cases this length of time is sufficient for thorough consideration of the applicant's claims."

There are numerous reasons why applications are thus intentionally delayed by inventors or their attorneys. Usually it is done for the deliberate purpose of watching the progress of the art made by other inventors, and then the application is amended so as to cover up the improvements shown in later patents.

An instance of this was the case of the well known Selden patent. Selden was a patent attorney. He applied for a patent on an improvement in motor vehicles. By a systematic course of prosecution he kept the case pending in the Patent Office over fifteen years. At the time he filed his application in 1879 the modern automobile was unknown. By the work of other inventors the automobile was made a commercial success. Selden, observing the development of the automobile, broadened his claims so as to have them cover the automobile perfected by others. His machine as shown in his application was a mere paper produc-

tion, and if it had ever been constructed, it would have been a commercial failure, but in his application was the germ of the present-day automobile, and by shrewd management of the application, and persistent work before the Examiner, the applicant succeeded in obtaining a patent of such scope that it covered every automobile put on the market employing an internal combustion engine. When his patent issued, it made every automobile of that type an infringement of his patent.

Around the Selden patent was built up an association of automobile manufacturers, which for many years preyed upon other automobile manufacturers and exacted tribute from them in the shape of royalty. Those manufacturers who would not come into the association, or who were not wanted, were driven out of the business by suits for infringement. It was not until the association met the Ford Automobile Company that any real opposition to the validity of the Selden patent was encountered. As a result of the litigation, the Selden patent was so restricted in scope that it lost its position in the art as a basic patent, but Selden had accomplished his purpose for it made him a millionaire.

A still more famous case was the Berliner patent on a combined telegraph and telephone, which was pending in the Patent Office for a period of thirteen years. The application was filed on June 4, 1877, and was not granted until Nov. 17, 1891. The issuance of the Berliner patent at that time served to effect the extension of the monopoly of the Bell Telephone Company.

Bell's patent was issued on March 7, 1876. Seventeen years counting from that date caused the patent to expire in 1893. Bell's patent covered broadly the process of transmitting sound by an undulated electric current. His patent showed a transmitter capable of producing such a current, but so feebly that its use was limited to short distances. It was inefficient for public uses. By the subsequent inventions of Berliner, Edison and Blake, the Bell telephone was brought to its present state of perfection. In order to extend the monopoly as much as possible, the Bell Telephone Co. took out a patent on Berliner's invention just in time to overlap Bell's and on Edison's in time to overlap Berliner's. The opposition to this state of facts became so strong that the United States was forced to act, and a bill in equity was filed in the Circuit Court of the United States in and for the District of Massachusetts against the American Bell Telephone Company by the United States, praying a decree to set aside and cancel the Berliner patent. The Circuit Court sustained the bill of complainant and entered a decree as prayed for. On appeal to the Court of Appeals for the First Circuit, the decree of the Circuit Court

was reversed, and a decree entered directing a dismissal of the bill. Thereupon the United States took an appeal to the Supreme Court of the United States. Among the grounds for relief presented on behalf of the United States it was urged that the delay of the application in the Patent Office for thirteen years "was under the circumstances alleged in the bill unlawful and fraudulent."

The Supreme Court in passing upon the matter and affirming the decision of the Court of Appeals dismissing the bill said:

"Congress has established a department with officials selected by the government to whom all applications for patents must be made. It has prescribed the terms and conditions of such applications and entrusted the entire management of affairs of the department to those officials. When an applicant for patent complies with the terms and conditions prescribed, and files his application with the officers of the department, he must abide their action and cannot be held to suffer or lose rights by reason of any delay on the part of those officials, whether reasonable or unreasonable, unless such delay has been brought about through the corruption of the officials, or through his inducement, or at his instance. Proof that they were in fault, that they acted unwisely, unreasonably, and even that they were culpably dilatory, casts no blame on him and abridges none of his rights."

These delayed applications have always been a bugbear to the Patent Office. Because they are only amended once a year the Examiner is never intimately acquainted with their subject-matter, and as he should examine every pending application in his class before allowing an application, it means that he must inform himself about these old cases. Since they are taken up yearly, and as the examining force is constantly changing, an Examiner who examines a certain application this year may be transferred to another division, and a new Examiner appointed to go over the same old application next year. Most of the delayed applications are cases in which a large number of claims are involved. Indeed, it has often been stated that the time of the Patent Office Examiners is taken up in large measure by the consideration of these delayed applications.

Every Commissioner of Patents has felt the need of adopting corrective measures to avoid this unnecessary labor, but the past administrations have never gone further than to refuse to reopen old delayed cases which had inadvertently become abandoned through a failure to amend the cases in time or because of incomplete amendments. In other words, the former administrations were content with applying strictly to the delayed applications the right of amendment, but went no further.

In harmony with his determination to correct all the existing evils of the

Patent Office practice, Commissioner Ewing early in his administration gave attention to this matter. In the Official Gazette of October 14, 1913, within two months after he assumed his official duties, appeared the following order:

Delayed Applications.

(ORDER NO. 2,075.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,

Washington, D. C., October 8, 1913.

It is hereby ordered that the Examiners shall make special every application which has been pending for fifteen years or longer and every application purporting to be a division or a continuation of an application filed more than fifteen years ago and that after January 15, 1914, no amendment or other paper presented by or on behalf of the applicant in any such application shall be entered without having been first called to the personal attention of the Commissioner.

(Signed) THOMAS EWING,
Commissioner.

The success following the issuance of this order prompted the Commissioner to go a step further, and in the Official Gazette of February 3, 1914, appeared the following order:

Delayed Applications.

(ORDER NO. 2,095.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,

Washington, D. C., January 19, 1914.

It is hereby ordered that the Examiners make special every application which has been pending for eight years or longer and every application purporting to be a division or a continuation of an application filed more than eight years ago. After May 31, 1914, no amendment or other paper presented by or on behalf of the applicant in any such application shall be entered without having been first called to the personal attention of the Commissioner. On June 1, 1914, each Examiner shall report to the Commissioner what applications falling under this order are pending in his division.

THOMAS EWING,
Commissioner.

By the second order every application which had been pending in the Patent Office for eight years or longer was made "special." In other words, it was taken up for action immediately upon its being amended by the attorney. Instead of fifteen years being the limit in the first order, the period was reduced in the last order to eight years.

Having tested the period of eight years, the Commissioner felt that he could go the full limit and, by the latest order, which was published in the Official Gazette of March 31, 1914, the time has now been reduced to five years. The order reads as follows:

Delayed Applications.

(ORDER NO. 2,107.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,

Washington, D. C., March 12, 1914.

It is hereby ordered that after June 1, 1914, the Examiners make special every application which has been pending for five years or longer and every application purporting to be a division or a continuation of an application which has been on file more than five years. After September 15, 1914, no amendment or other paper presented by or on behalf of the applicant in any such application shall be entered without having been

first called to the attention of the Commissioner. On September 16, 1914, each Examiner shall report to the Commissioner what applications falling under this order are pending in his division.

THOMAS EWING,
Commissioner.

By reason of these progressive actions, it is believed that no harm can come to the interests of worthy applicants, and the policy of keeping cases pending in the Patent Office, which has been practiced by certain attorneys, inventors and manufacturers, has been struck a serious blow. As the Commissioner said in his annual report:

"Few applicants who keep their cases in the Office for many years deliberately are entitled to favorable consideration. It is believed that the consequence of the application of this conviction on the part of the Commissioner to the delayed cases will satisfy applicants of the wisdom of prosecuting their cases promptly. Every effort will be made to eliminate this evil of long pending applications. If during the course of a year this has been satisfactorily accomplished it is believed that no legislation will be necessary to prevent the recurrence of the evil. Should my efforts however along this line prove to be ineffectual, I shall in my next report to Congress recommend appropriate corrective legislation."

In addition to the foregoing orders, Commissioner Ewing has other plans in mind to combat this evil, and he refers to them in his annual report thus:

"I hope to be able to make it impossible for an applicant to prosecute his application by dilatory or time-consuming amendments, in refusing to enter amendments which are not proper responses to Office actions, and in appropriate cases holding the application to be abandoned."

"I am also considering the propriety and wisdom of making these old applications public. The statute contains no provision against it. There is, however, a rule of the Office, under which they have all been filed, which declares that the application shall be preserved in secrecy. I shall make further report on this point in my next report."

The plan of throwing open to public inspection the delayed applications would do more than anything else to solve the problem. No applicant would care to have his application examined by other applicants or attorneys. Making the applications public will undoubtedly reduce the number of delayed applications if it does not wipe them out altogether.

These delayed applications work a hardship to progressive inventors and manufacturers in many ways. Under the practice of the Patent Office all applications are preserved in secrecy. Because of this fact, a preliminary examination to determine the patentability of the invention or ascertain infringements thereon cannot take into

account pending applications. An inventor or manufacturer wishing to embark in some new enterprise is limited in his investigation to the patents issued.

To show how these delayed applications affect the rights of later inventors, a single instance may be cited. Sometime ago an inventor applied for a patent on an invention. Before making the application, the attorney made a thorough examination of the patents already granted and could find nothing approaching the invention, and as a result presented an application with broad claims. After due prosecution, the claims were allowed, whereupon an interference was declared with an application which had been pending for several years. The last applicant was unable to carry his date of conception back of the other party's filing date, with the result that the application which had been pending in the Patent Office for several years barred the right to a patent to the later inventor. Now, if that patent had been issued, as it should have been, and as it would be under the practice of the present Commissioner, the attorney would have discovered the patent upon an examination of the Patent Office records in the U. S. patents, and his client would have been saved the expense of making an application.

In every other country, an applicant is required to amend his application within a much shorter time. A period varying from two to four months is allowed in most of the foreign countries. An extension may be procured, but in some instances it requires the expenditure of a small fee to obtain the privilege of an extension. By the adoption of this course, foreign applications are carried through with considerable expedition. Such a thing as an application pending for five or eight years in a foreign Patent Office is unheard of.

There have been several attempts made before Congress to shorten the time for the amendment of an application by requiring an applicant to amend his application within six months from the date of the Official action. While we don't believe this amendment is favored by attorneys, we are inclined to the opinion that unless attorneys co-operate with Commissioner Ewing in avoiding this long-standing evil of delayed applications, Congress may be asked to pass a law shortening the time for amendment.

We think that inventors and attorneys should work with the Commissioner to eliminate this objection. The Commissioner is doing so much to better conditions within the Patent Office that a sense of appreciation of his work should prompt attorneys to help him to reach a proper solution of this question.

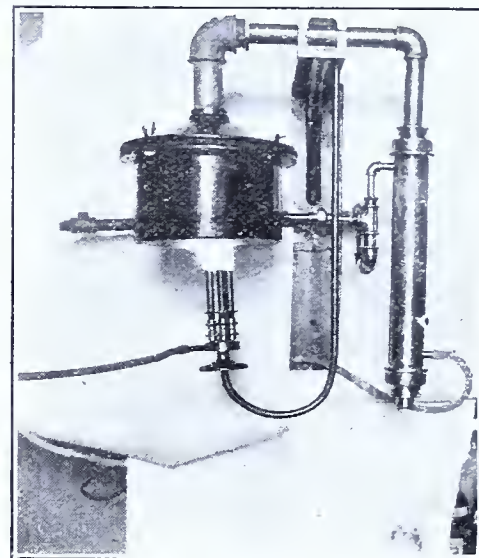
To keep themselves posted in the progress of the arts in which they are interested, inventors and manufacturers should subscribe for the INVENTIVE AGE, which publishes a list of all patents issued each month. The low subscription price and the character of the publication entitle it to the support of all the inventors of the country.

DISTILLING WATER BY GAS.

The accompanying illustration shows a novel automatic water still, which has a capacity of from one-half to nine-tenths of a gallon of water per hour. This is said to be a most serviceable gas distilling apparatus, and supplies distilled water at a cost of from five to three cents per gallon.

While thinking people everywhere are alive to the dangers resulting from the use of polluted water, there is unfortunately hardly a public supply that is totally free from injurious germs during the entire year.

Without doubt, aerating, filtering or boiling bad water will improve it, but this will not prevent serious disorders to the human system due to the presence of dead animal and vegetable matter. It is therefore maintained that the only waters that answer modern demands are found in isolated country springs, or are produced by distilling processes.



While not every family can afford a spring or the waters from it, distilled water may be produced in one's own house at a small expense, by boiling water and condensing the steam, and when thus obtained the water is clean, soft and germ free.

There is no discussion necessary regarding clean water: all prefer it; and soft water is prescribed by physicians for rheumatism, kidney disorders and lime deposits. Many middle aged and old people can drink no other water without great physical discomfort. Thousands die yearly from typhoid fever, which is a germ disease, and by using distilled water which contains no germs it may be avoided. Numbers of men in the U. S. Navy use distilled water exclusively and are not troubled by this fearful malady.

This apparatus consists of a source of heat—a boiling kettle or retort—and a condensing coil, surrounded by cold water. The interior of the apparatus is lined with pure tin or nickel. The cooling coil is block tin. If running water is available, the apparatus can be made automatic, otherwise several gallons of water are poured into the heating vessel at one time. When about three quarters of this has been distilled, the apparatus is again filled.

A removable top is provided so that the interior may be thoroughly cleaned.

Great care has been taken to prevent the passage of impurities with the steam. Water has been distilled containing 2500 parts of dissolved solids per million, and by the employment of a very hot fire a distillate has been recovered containing less than 20 parts per million. Such water is required in chemical laboratories, by photographers and by druggists.

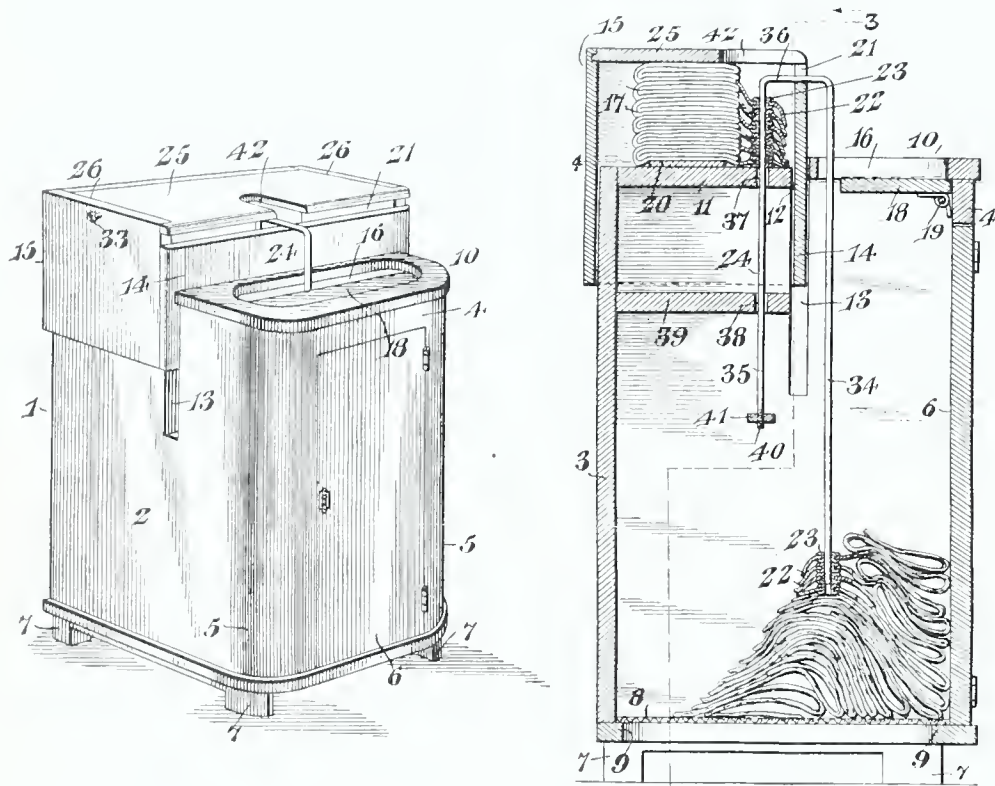
CLEVER NEW PATENTS.

TOWEL CABINET—SHEET METAL TACK—SCREENING SHOVEL.

Towel Cabinet.

In hotels and other public places the common roller towel has long since been replaced by more sanitary devices. In some instances the roller tissue towel is being used. The invention of Harry Solomon, of St. Joseph, Mo., who has assigned forty-nine one-hundredths to Frederick Eliscu, of the same place, aims to provide a construction of cabinet for the purpose of supplying individual cloth towels to each user, the cabinet being adapted to hold a large number of clean towels and maintain the same in a sanitary condition, the towels being arranged so that only a portion of each towel is exposed. By a novel construction the towels may be removed, one at a time, without mussing or disarranging the clean towels contained within the cabinet, and after using, the soiled towel is placed in a receptacle provided for the purpose.

In the accompanying illustration, the figure to the left represents a perspective view of the cabinet, while the figure to the right is a vertical sectional view. 1 designates a cabinet or casing provided with a hinged door 6, which affords access to the interior thereof and particularly to that portion which contains the soiled towels. The bottom of the cabinet is constructed of woven wire or other suitable material, and supported above the floor, so as to allow for the circulation of air under the cabinet, in order to evaporate the moisture resulting from damp towels.



On the top of the cabinet, at the rear, are supported the clean towels 17, which, when ironed, are folded with one end projecting beyond the folds, and said ends are each equipped with an eye, reinforced with metal or other suitable means, and adapted to be threaded upon a guide rod 24, as shown in the sectional view. Enclosing the towels and resting upon the same is a hood 15, which telescopes the rear portion of the casing and protects the stack or pile of clean towels, which may be removed when desired through the slot 21 provided in the front of the hood. The guide rod 24 is made substantially U-shaped in form, the larger branch 34 of the rod extending down within the front portion of the cabinet, nearly to the bottom. At the top of the front portion of the cabinet a relatively large opening 16 is provided, which allows the towels, after use, to be dropped inside of the cabinet, as clearly shown in the sectional view. At the said opening 16 a hinged guard 18 is provided, which serves to conceal the soiled towels from view, and at the same time, prevents free access to the cabinet from the front, and thus prevents a person from reaching down inside the cabinet and getting hold of the soiled towels.

In operation, the uppermost towel of the stack is drawn forwardly or outwardly through the slot 21 in the telescoping hood, the top connecting portion of the guide rod 24 permitting such a movement. After the towel has been used, it is allowed to fall, and the front vertical portion 34 of the guide rod will guide the towel through the opening 16 into the front towel-receiving portion of the cabinet. Towels, after use, are allowed to fall through the opening 16 and to accumulate at the bottom of the front portion of the cabinet. In practice, the last of the towels of the stack will remain on the lower portion 34 of the guide rod.

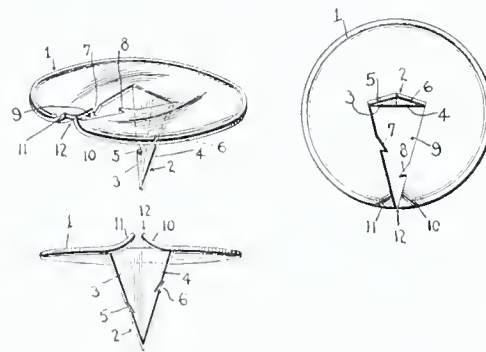
The telescoping hood adjusts itself automatically to the diminishing size of the stack or pile of towels, and is movable independently of the guide rod. The front door 6 affords ready access to the interior of the cabinet to enable the soiled towels to be quickly removed. The invention is being manufactured, and has been introduced in hotels and other public lavatories, where it is proving to be a great public convenience.

Sheet Metal Tack.

The construction of a tack to be used for roofing purposes, made out of a single piece of sheet metal, is the subject of a patent granted to Alexander Hamill, of Baltimore, Maryland. As

shown in the cut, which represents respectively a perspective view, a bottom plan view, and a side view of the tack, it will be noted that the tack is constructed from a single blank comprising a circular or disc-shaped body

portion 1 provided with a single prong or shank 2, formed by stamping a V-shaped member from said disc or body portion, beginning at a point on the edge or periphery of said disk, and gradually broadening towards the base of said prong, which extends beyond the center of the head. The V-shaped member or prong is bent at right angles to the disc, and then folded longitudinally to give rigidity thereto, and enable it to withstand blows from a hammer when necessary



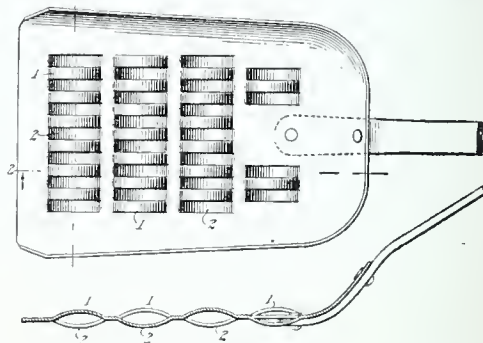
to be used for forcing the shank or prong into the roof or other object into which it is to be driven. The flanges 3 and 4, formed by the folding or bending of the prong longitudinally, taper toward the free end of the prong, forming a needle point to facilitate its insertion into an object. This is especially desirable when the device is made in the form of a thumb tack. The said flanges of the prong are preferably notched at opposite sides to form spurs 5 and 6, which serve to prevent the accidental withdrawal of the tack after it has been inserted. In forming those notches during the stamping operation, tongues 7 and 8 are produced on the disc at opposite sides of the slot, which is left by the striking out of the prong. These tongues 7 and 8 may remain on the disk or be cut off, as desired. The slot or recess formed by the striking out of the prongs provides resilient gripping fingers 10 and 11, which are drawn towards each other by the longitudinal folding of the prong, thereby producing a convex shape to the outer face of the disc, as shown in the top figure to the left.

By this construction a simple and efficient tack is provided, which may be readily constructed from sheet metal in a single operation, and which is made sufficiently strong and rigid

to adapt it to withstand the force necessary to be employed in driving the tack into an object.

Screening Shovel.

A shovel which acts as a screen for sifting cinders, coal and like commodities, is the novel invention made by Onesime Thibault, of Fall River, Mass. As shown in the drawing, which represents in the upper view a plan of the shovel blade and in the bottom view a longitudinal section, the shovel blade is provided with a series of transverse rows of bars or strips 1 and 2, the bars 1 being raised or bowed upwardly, while the bars 2 are depressed downwardly. These strips or bars are formed by slitting the blade and bending the portions between the slits alternately in opposite directions. The rows of bars are arranged at short distances apart, and are parallel to each other and to the longer axis of the shovel blade. The strips or bars are narrow and of uniform width throughout their length. By this arrangement, openings are formed on both the upper and lower sides of the blade, which permit ashes



or coal dust or other fine material to pass readily through the blade, while larger pieces are retained on the shovel. The slight convexity given to the bars enables the latter to be easily inserted in or under cinders, coal or other material required to be sifted or screened. When a shovelful of the material is raised, the side of the blade is struck against the side of a receptacle for the finer material, which causes the latter to pass readily through the openings formed by and between the bowed bars. The blade may be quickly and easily manufactured by means of cutting and shaping dies out of sheet metal.

PATENTS

Send Your Business Direct to Washington ∴ ∴
∴ ∴ Saves Time and Insures Better Service.

Trade Marks,
Copyrights
and
Designs.

My office is close to the U. S.
Patent Office. Personal attention
given—OVER THIRTY YEARS
PRACTICE. Book "How to Ob-
tain Patents," etc., sent free.

E. G. SIGGERS, 918 F STREET, N. W.,
WASHINGTON, D. C.

LATEST COURT DECISIONS IN PATENT, COPYRIGHT AND TRADE-MARK CAUSES.

WESTINGHOUSE MACH. CO. et al. v. GENERAL ELECTRIC CO. et al.
(Circuit Court of Appeals, Second Circuit.
June 13, 1913. 207 F. R. p. 75.)

PATENTS—RIGHT TO PATENT—USE OF INVENTION IN FOREIGN COUNTRY.

Under Rev. St. § 4922 (U. S. Comp. St. 1901, p. 3396), which expressly provides that a patent shall not be held to be void on account of the invention or discovery, or any part thereof having been known or used in a foreign country before the patentee's invention or discovery thereof, if it had not been patented or described in a printed publication, for the purpose of defeating a patent application a previous reduction to practice of the invention in a foreign country is a nullity unless it was patented or described in a printed publication.

ARCHER et al. v. IMPERIAL MACH. CO.
(Circuit Court of Appeals, Second Circuit.
June 13, 1913. 207 F. R. p. 81.)

1. PATENTS—INVENTION—MACHINE FOR PEELING POTATOES.

The Archer patent No. 999,478 for peeling potatoes, consisting of a metal cylinder having a revolving metal disk near the bottom by which the potatoes are removed, and its inner surface coated with a granulated abrading material, such as emery, is void for lack of invention; the only material change over the machines of the prior art being the substitution of well-known abrading material for roughened or striated surfaces, which produced better results but not sufficiently better to constitute invention.

2. PATENTS—INVENTION—SUBSTITUTION OF MATERIALS.

A change of material may evidence invention, but in order to do so it must produce a result so much better as to be novel and unexpected.

GENERAL BAKELITE CO. v. NIKOLAS.
(District Court, E. D. New York. July 29, 1913. 207 F. R. p. 111.)

PATENTS—SUIT FOR INFRINGEMENT—PLEADING.

Allegations in a bill for infringement of a patent respecting compliance by the patentee with the statutory prerequisites to entitle him to the patent held sufficiently specific under new equity rule 25 (198 Fed. xxv, 115 C. C. A. xxv), which requires "a short and simple statement of the ultimate facts," but an allegation merely that defendant infringed by making and offering for sale the patented article is insufficient as consistent with a rightful use.

GOODWIN FILM & CAMERA CO. v. EASTMAN KODAK CO.
(District Court, W. D. New York. August 14, 1913. 207 F. R. p. 351.)

1. PATENTS—PHOTOGRAPHIC PELLICLE—FILMSUPPORT.

Hannibal Goodwin patent, No. 610,861, for a film support for photographic purposes especially in connection with roller cameras held valid, not anticipated, and infringed as to claims 1, 7, 8, 10, and 12, covering the process and product of the patent.

2. PATENTS—INTERPRETATION—PROCEEDINGS IN PATENT OFFICE.

The interpretation to be placed on a patent is to be determined by the language of the grant, and the proceedings of the Patent Office are immaterial unless the patentee by his acquiescence has accepted limitations imposed by the rejection of broader claims.

3. PATENTS—ANTICIPATING PATENTS.

Anticipating patents and publications in order to affect a patent in question must disclose the invention without patentable change or alteration.

4. PATENTS—PATENTABLE INVENTION—PERFECTION OF ART.

The patent law does not require that an inventor shall have succeeded in bringing his art to the highest degree of perfection, but it is enough if the skilled in the art understand the process described and the specifications point out a practical way of performing it.

5. PATENT—PRIORITY—PROCESS PATENT—ESTOPPEL.

A patentee, during the course of proceedings to obtain a patent, practically conceded

priority of a specific process for making the same article, and his successor in title is estopped thereafter to assert infringement by articles made in pursuance of the specific process patented formula.

VALVONA-MARCHIONY CO. v. PERELLA et al.
(District Court, W. D. Pennsylvania. March 12, 1913. 207 F. R. p. 377.)

1. PATENTS—VALIDITY—MOLDS FOR ICE CREAM BISCUIT CUPS.

The Valvona patent, No. 701,776, for a mold for making biscuit cups to be used for holding ice cream, held valid, especially in so far as it provides for an appliance having all the heat absorbing and conducting sides of the mold of substantially the same thickness.

2. PATENTS—ICE CREAM BISCUIT CUP—INFRINGEMENT—"SUBSTANTIALLY."

Complainant sued for infringement of Valvona patent, No. 701,776, for a mold for making biscuit cups for holding ice cream: the important provision of the claim being a mold so constructed that all the heat absorbing and conducting sides were substantially of the same thickness. Held, that the word "substantially" meant that it was the same in all important particulars, implying that the results of the use of the device could not be obtained if there was a difference in the thickness; and hence the patent was not infringed by a similar mold used by defendant, much heavier in construction, and the heat absorbing and conducting sides of which were not substantially of the same thickness.

3. PATENTS—INFRINGEMENT—NATURE OF WRONG—BURDEN OF PROOF.

Infringement of a patent is a tort, and the burden of proving it is on him who asserts it.

VALVONA-MARCHIONY CO. v. MARCHIONY.
(District Court, D. New Jersey. July 10, 1913. 207 F. R. p. 380.)

1. PATENTS—CONSTRUCTION OF CLAIMS—"SUBSTANTIALLY."

"Substantially" is a relative word, which, while it must be used with care and discrimination in a claim of a patent, must nevertheless be given effect by allowing considerable latitude of meaning, where it is applied to such subjects as thickness, as by requiring two parts of a device to be of substantially the same thickness, and cannot be held to require them to be of exactly the same thickness.

2. PATENTS—CONSTRUCTION OF CLAIMS—ESTOPPEL BY ACTION OF PATENT OFFICE.

To be estopped by the action of the Patent Office, a patentee must be shown to have surrendered something which he now claims, in order to obtain that which was allowed.

3. PATENTS—INFRINGEMENT—APPARATUS FOR BAKING BISCUIT CUPS.

The Valvona patent, No. 701,776, for apparatus for baking biscuit cups for ice cream, construed, and held infringed.

4. EQUITY—LACHES.

Mere laches does not usually bar a party, unless under circumstances which work an equitable estoppel against him.

G. & C. MERRIAM CO. v. SYNDICATE PUB. CO.
(Circuit Court of Appeals, Second Circuit.
June 18, 1913. 207 F. R. p. 515.)

1. TRADE-MARKS AND TRADE-NAMES—UNFAIR COMPETITION—WEBSTER'S DICTIONARIES.

Any publisher of a dictionary which is an abridgement of or a revision or compilation based on the original Noah Webster dictionaries has the right to use the name "Webster" as a descriptive part of its title; the direct successor of the publisher of the original Webster, whose present day publications are of precisely the same character in their relation to the original, having no exclusive right to the name or to require more than that other and later publishers shall clearly distinguish their works from its own.

2. EVIDENCE—HEARSAY—EXCEPTIONS TO RULE EXCLUDING.

A statement by the compiler in the preface to a dictionary published in 1850 that he had adopted Webster's dictionary as the basis for his own, correcting and adding to the same to bring it down to the date of publication, is admissible in evidence as within an exception to the rule which excludes hearsay.

APOLLO BROS., Inc., et al. v. PERKINS.
(Circuit Court of Appeals, Third Circuit.
Sept. 16, 1913. 207 F. R. p. 530.)

1. TRADE-MARKS AND TRADE-NAMES—NATURE OF RIGHT.

The law governing technical trade-marks is but a branch of the law regulating trade competition; the prevention of unfair competition being the desideratum in both.

2. TRADE-MARKS AND TRADE-NAMES—UNFAIR COMPETITION—EVIDENCE.

Unfair competition in the sale of cigarettes under a similar name was not established, where the two brands were not offered in the same market, did not in fact compete, and no deception was attempted; defendant's package being radically different from plaintiff's in coloring, printing, and form, so that the one could not be readily mistaken for the other, and defendant's package could never have been used to deceive customers desiring to purchase cigarettes made by complainant.

3. TRADE-MARKS AND TRADE-NAMES—REQUESTS.

A name, in order to constitute a valid trade-mark, must point distinctly to the origin or ownership of the commercial article to which it is attached, either in meaning or by association, and must be of such a nature as to permit of exclusive appropriation by one person.

4. TRADE-MARKS AND TRADE-NAMES—GEOGRAPHICAL NAME—REGISTRATION—EXCLUSIVE APPROPRIATION.

Under Trade-Mark Act Feb. 50, 1905, c. 592, § 5, 33 Stat. 725 (U. S. Comp. St. Supp. 1911, p. 1461), denying registration to marks which consist merely of a geographical name or term, the word "Nubia" was not only incapable of official registration as a trade-mark for cigarettes, but could not be exclusively appropriated by any one, where it had not obtained a secondary meaning indicating that the goods bearing it came from one and the same source.

5. TRADE-MARKS AND TRADE-NAMES—GEOGRAPHICAL NAME—RIGHT TO USE—INFRINGEMENT.

Where a geographical name was not subject to absolute ownership and exclusive use as a trade-mark, the rights obtained by the first user, as a name for goods to which it was attached, were not infringed by mere use of the name by a competitor, even though such use was in association with competing goods; the second user's liability being limited to a case of unfair competition.

6. TRADE-MARKS AND TRADE-NAMES—PROTECTION—NATURE OF RIGHT.

An action to protect trade-mark rights, whether at law to recover damages or in equity to restrain further infringement, is founded upon false representation.

7. TRADE-MARKS AND TRADE-NAMES—PROPERTY—INFRINGEMENT.

A technical trade-mark, whether registered, or unregistered, is treated as property, and infringement thereof carries a presumption of fraud; but where no exclusive right to use of a trade-mark exists, a technical trade-mark is not established, and fraud and unfair competition in the use of the trade-mark must be proved.

CORN PRODUCTS REFINING CO. v. DOUGLAS & CO.

(District Court, N. D. Iowa, Cedar Rapids Division. August 18, 1913. 207 F. R. p. 571.)
PATENTS—VALIDITY AND INFRINGEMENT—PROCESS OF MAKING LUMP STARCH.

The Moffatt patent, No. 541,941, for a process of forming starch into coherent masses by subjecting starch containing not more than 30 per cent. nor less than 16 per cent. of water to a temperature in excess of 100 degrees F. and less than 160 degrees F. conjointly with pressure, is limited with respect to heat to the maximum of 160 degrees stated, which is shown by the specification and proceedings in the Patent Office to be an essential and important element in the process. As so construed the patent is not infringed by the process of the Gudeman patent, 789,127.

VINCENT v. TONOPAH MINING CO. OF NEVADA et al.

(District Court, D. Delaware. August 8, 1913. 207 F. R. p. 579.)

1. PATENTS—VALIDITY AND INFRINGEMENT—PROCESS FOR TREATMENT OF ORES.

The Brown patent, No. 781,711, for a process for the treatment of precious metal-bearing ores, the essential feature of which consists in changing the order of the well-

known steps in the recovery of metal from the ores by the cyanide process so that the cyanide treatment for the recovery of the fine values precedes concentration, to which only the residue or tailings is subjected, while not entitled to a broad construction in view of the prior art, is valid and is infringed by a process in which substantially the same steps are taken in the same order, although other steps not included or required by the patent are added.

2. WORDS AND PHRASES—"LEACHING."

As applied to the cyanide process of treating ores, the essence of "leaching" does not depend upon any special mode of applying to the ore the dissolving cyanide solution, but upon the fact that the application producing dissolution of the finer values.

PERFECTION COOLER CO. v. CORDLEY et al.

(District Court, D. Massachusetts. August 1, 1913. 207 F. R. p. 799.)

PATENTS—ANTICIPATION—WATER COOLER.

Evidence considered, and held insufficient to show anticipation of the Newell patents, No. 895,781 and No. 895,782, for water coolers by an unpatented structure, under the rule that to establish the identity of the two structures, after the lapse of a number of years, something more than oral testimony is required, and in view of the fact that, conceding identity, the evidence that the use of the alleged anticipating structure antedated the Newell invention rested entirely on the recollection of witnesses and was not clear.

STILLWELL v. McPHERSON, Highway Com'r.

(District Court, N. D. New York. Aug. 23, 1913. 207 F. R. p. 837.)

1. PATENTS—EVIDENCE OF INVENTION—COMMERCIAL SUCCESS.

While commercial success is some evidence of utility and perhaps of invention which may turn the scale in doubtful cases, it does not of itself prove invention.

2. PATENTS—VALIDITY AND INFRINGEMENT—CORRUGATED METAL CULVERT.

The Watson patent, No. 559,642, for a corrugated sheet metal culvert, in view of the prior art, is void for lack of patentable invention. Also held not infringed conceding validity, construed and limited as it must be in view of such prior art.

A NEW CREATION

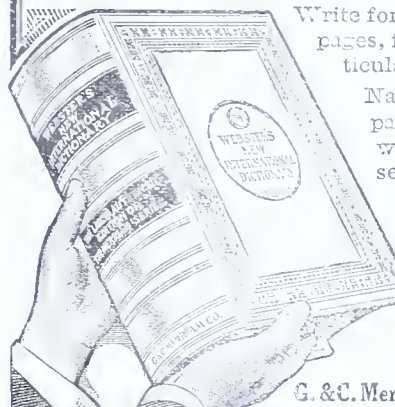
WEBSTER'S NEW INTERNATIONAL DICTIONARY

THE MERRIAM WEBSTER
The Only New unabridged dictionary in many years.

Contains the *path* and *essence* of an authoritative library. Covers every field of knowledge. An Encyclopedia in a single book.

The Only Dictionary with the *New Divided Page*.
400,000 Words. 2700 Pages. 6000 Illustrations. Cost nearly half a million dollars.

Let us tell you about this most remarkable single volume.



Write for sample pages, full particulars, etc.

Name this paper and we will send free a set of Pocket Maps

G. & C. Merriam Co.
Springfield, Mass.

MECHANICAL INVENTIONS

Patents for which have been procured through the Patent Soliciting Office of E. G. Siggers, Patent Lawyer Washington, D. C.

Joseph Nemec, Cameron, Texas. Hydrocarbon Burner.—The improvement of the present invention provides an efficient hydrocarbon burner equipped with a safety device adapted to admit only a limited supply of kerosene or other liquid fuel to the burner, to enable the latter to be operated with absolute safety by either a woman or a child. The device comprises a fuel delivery pipe or nipple communicating with a vapor generator, a needle valve for controlling the flow of fuel to the generator, said needle valve being provided with a stem having a threaded portion and provided also with a shoulder, and an adjustable sleeve interiorly threaded to receive the threaded portion of the needle valve and provided with an interior stop arranged to engage the shoulder of the needle valve stem for limiting the opening movement of the needle valve.

Jacob O. Schmidt, Sheboygan, Wis. Folding Stand.—The object of the invention of this patent is to provide a stand adapted to be utilized for various purposes, especially for holding flower pots adjacent to a window or in a conservatory for exposing the flowers to the sun, and which, when not in use, may be readily folded up and stored away in a small space. Another object of the invention is to provide a device that may be used to advantage as a stepladder where only a slight elevation is to be reached by the user, and in this connection it is especially useful to paper hangers and interior finishers who need to be elevated but a few feet. The stand comprises an upper step or shelf, rigid front legs, swinging rear legs, connecting struts pivoted intermediate their ends at an intermediate point of the front legs and extending out therefrom and carrying a lower step or shelf, said struts having notches on their lower edges, rigid horizontal supports provided on the rear legs to engage the said notches, and means also provided on the rear legs for holding the struts in engagement with the supports.

Richard T. Wilson, inventor, Hastings, Michigan; Aben E. Johnson, assignee, same place. Artificial Bait.—This invention relates to artificial bait, and the principal object of the same is the provision of a highly deceptive casting and trolling bait, which, when drawn through the water, will accurately simulate the movements of a live minnow, swimming in a zigzag course near the surface of the water or beneath the same, more or less deeply, as it is drawn through the water with varying speed. The bait comprises a conical floatative body having formed on its surface a plurality of longitudinal flutes with their axes extending in a general direction parallel to the axis of the body, said flutes being symmetrically spaced about the body and extending from the medial portion to and merging into the front face of the body, and adapted to cause the latter to move in a zigzag course when drawn through the water, and hooks carried by the body.

Lloyd W. Stein, Lancaster, Ohio. Cooker.—This patent covers a food cooker in which the cooking is effected by circulating heated water through

a cabinet or casing, and it is an object of the invention to provide a water heater adapted to lessen the consumption of fuel and capable of maintaining a uniform temperature throughout the cabinet or casing of the cooker, without permitting the water within the cabinet or casing to rise to the boiling point. The cooker comprises a water heater arranged exteriorly thereof and including a reservoir, and supporting the same at an elevation, plates secured to and depending from the bottom of the reservoir and spaced apart to form intervening heat collecting spaces, said plates being also adapted to have the flame of a burner impinged against them, and a hood supported at an elevation by the reservoir and having side walls extending below the plane of the plates, said hood being open at the bottom to permit a burner to be placed beneath the reservoir.

Ray Altop, Columbus, Montana, inventor; Harry L. Raif, same place, assignee. Nut Lock.—The object of this invention is the provision of means for preventing, with certainty, the working loose of nuts from bolts. The nut lock comprises a polygonal nut having its facets provided with recesses, and its threaded bore provided with a plurality of longitudinal grooves corresponding radially with the recesses, said nut being also provided at its edges with notches arranged in alignment with the recesses and forming inclined guiding faces, a bolt receiving the nut and provided in its threaded portion with a longitudinal groove with which the grooves of the nut are adapted to register, and a locking pin fitting in the registering grooves of the nut and bolt and curved outwardly from the latter in a direction transversely thereof in advance of the nut and extended backwardly in a direction longitudinally of the bolt to form an outer leg, the latter being provided with a terminal head to engage a recess of the nut. The locking pin is resilient to enable it to be applied to nuts of different sizes, and the notches in the nut receive the outer leg when the locking pin is applied to a relatively large nut.

Thomas B. Alsup, Erick, Oklahoma. Beam Spring Trip for Cultivators.—It is the aim of the present invention to provide a spring trip constructed of sufficient strength to enable it to be employed on stirring and breaking plows, as well as cultivators, planters, and the lighter class of agricultural implements, and adapted to be arranged at the top of the beam in order to be out of the way of trash, so that the latter will not collect and interfere with the free action of the trip. The spring trip comprises a post extending upwardly at the rear portion of the beam, a plow foot or shank pivoted in rear of the post, a bolt extending upwardly from the shank and slidable through the post, a spring disposed on the bolt and interposed between the post and the shank for urging the latter downwardly and forwardly and adapted to permit the shank to swing upwardly and rearwardly, and pivoted links connected with the post and with the shank for limiting the downward and forward movement of the shank. The device is capable of a perfect and easy operation at all times, so that there is no liability of breakage or otherwise injuring the parts of a plow or cultivator should the plow share, shovel, or other soil engaging device come in contact with a stump or other dangerous obstruction.

Emanuel Chainey, Florence, Wisc., inventor; four patents; Louis Yehle, same place, assignee of first patent; Florence Mfg. Company, same place, assignee of the second patent; James Akrigg, same place, assignee of the third and fourth patents.—The first patent covers a saw set adapted to be adjusted to a saw in less time than an ordinary hand saw set, and capable of setting the teeth faster than the same, without liability of breaking the teeth. The saw set includes a body having an opening, a vertically movable tooth-setting punch guided on the body, a yoke pivotally connected with the body and embracing and interlocked with the tooth setting punch, the sides of the yoke being located adjacent to the said opening, and a coiled spring mounted within the opening and having its terminals extended in opposite directions and engaging the sides of the yoke. The spring is adapted to swing the yoke upwardly to raise the tooth setting punch after each operation.

The second patent also relates to a saw set, and has for its object to enable the saw set to be quickly and accurately applied to and adjusted along a saw blade, and to arrange the parts so that the body of the saw set will absorb the blows of a hammer and thereby reduce the rebounding of the device to a minimum. The saw set comprises a body, a horizontal movable punch mounted thereon, a gage supporting member extending from opposite sides of the body, an approximately U-shaped gage mounted on the said member at one side of the body and having an outer or front side arranged at an angle and extending downwardly and inwardly to engage the tooth of a saw at the outer face thereof, and another approximately U shaped gage mounted on the member at the opposite side of the body and provided with an inwardly projecting portion arranged to engage the teeth of a saw at the cutting edges thereof to position the saw set on the saw.

The object of the invention of the third patent is to provide an exceedingly practical saw gummer adapted to occupy a comparatively small amount of space, and equipped with means for enabling a saw blade to be reciprocated and kept in constant motion while being operated on by an emery wheel or other grinding device, whereby heating of the blade is avoided. The saw gummer consists broadly of a grinding wheel, a guide, a slidable saw clamp mounted on the guide, and a lever fulcrumed in rear of the saw clamp and extending across the same, whereby it is adapted to be engaged with the teeth of a saw blade for vibrating the same along the guide, to prevent the saw blade from becoming heated.

The invention of the fourth patent has for its object to provide a block saw set with which the hammer acts directly upon the teeth of the saw, and which is capable of being easily adjusted to suit the character of the teeth of the saw, and adapted to be conveniently handled by the operator, and to absorb the jar or shock from the blows of a hammer, and thereby relieve the hand of the operator. The saw set consists of a body comprising a rear relatively heavy shock-absorbing hand grip consisting of an elongated knob adapted to fit the hand, and a relatively narrow forwardly extending portion provided with an upper longitudinal extension having a front anvil face, a gage supporting plate secured at an intermediate point to the lower edge of the said extension and projecting from opposite sides thereof, and gages carried by the said plate.

George A. N. Coppedge, Henderson, North Carolina. Dry Closet.—The object of this invention is to provide a

dry closet equipped with a lid maintained in an open position by the pressure of a person occupying the seat, and capable of automatically closing when relieved of such pressure, and adapted, when closed, to effect a tight joint to exclude flies and other insects, and prevent the escape of odors. The dry closet includes a portable casing having a seat, an automatically closable lid hinged to the casing, a pair of levers fulcrumed intermediate of their ends at opposite sides of the lower portion of the casing to form front and rear arms, links located at opposite sides of the casing and pivoted to the rear arms of the levers and extending upwardly therefrom to the lid, a centrally arranged approximately vertical bar slidably mounted on the casing at the front thereof, a lower cross bar connecting the said vertical bar with the front arms of the levers, and a depressible leg receiving bar connected to the upper end of the vertical bar and arranged in substantially the plane of the seat when the lid is raised.

William Dickenson, New Orleans, Louisiana, inventor; Henry J. Dressel, same place, assignee. Car Fender.—The object of the invention is to provide a practical car fender, designed for use on street cars, and adapted to be supported normally above the track, clear of the rails and the road bed, and capable of being instantly dropped to the track and of picking up a person in any position, whether standing, sitting, or lying down, and of effectually preventing an object on the track from being run over by the car on which the fender is mounted. The invention comprises upright guides arranged at the front of a car at opposite sides of the dash board, brackets depending from the car, removable pins mounted in the brackets, a fender composed of a bottom member provided at the back with arms pivotally hung from the car in advance of the brackets, and supported in a forward position by the said pins to hold the bottom member normally in an elevated position, a rear upwardly extending member pivoted to the bottom member and provided with arms slidably connected with the guide rods, and operating means mounted on the car for withdrawing the pins to permit the fender to drop.

Thomas T. Hosack, Oil City, Pa. Wash Board.—This invention relates to wash boards, and has for its object to provide a device of this character which will reduce to a minimum the danger of damage to fabrics, even of the finest texture, during the process of washing, and which will effect a saving of soap or washing compound that may be used in such process, and which will render the operation of washing clothes a comparatively easy task. The invention consists of a wash board having a rubbing face consisting of a continuous sheet of wire fabric and an imperforate metallic plate underlying the wire fabric and supporting the same by direct contact therewith, and provided over its front face with spaced circular cavities depressed below the said front face of the plate and forming vacuum pockets which are arranged in line with each other transversely across the plate and are spaced from each other by an intervening flat portion of the plate, the mouths of such pockets opening out on the rubbing face of the board in flush relation with the outer or front face of said plate, said wire fabric being of open mesh and having its wires crossing the open mouths of the pockets both transversely and longitudinally of the board, and bearing directly upon said plate between said pockets, said wire fabric and said plate being retained in fixed relation to each other by the frame of the wash board.

NEW PATENTS FOR SALE.

Advertisements inserted in this column for 10 cents a line (about 7 words) each insertion. Every new subscriber sending \$1.00 to THE INVENTIVE AGE will be entitled to the AGE one year and to five lines three times FREE. Additional lines or insertions at regular rates.

FOR SALE—Patent No. 1,077,957, issued Nov. 11, 1913. A hay scatterer. Address, Peder J. Anderson, 108 S. Morris St., Stoughton, Wisc. jun

FOR SALE—New patented wrench of great merit. Would sell outright or on royalty basis. Instantaneous Wrench Co., Box 311, Grand Saline, Texas. jun

FOR SALE—Patent No. 965,411. Combination cultivator and furrow maker. Also Patent No. 971,218, rotary harrow, outright or royalty. Address, Sigmund Schaller, Haddan, Conn. jun

FOR SALE—Patent No. 1,078,075, dated Nov. 11, 1913. Rail Tie. This rail tie is simple, strong, reliable, economical and ornamental. For further particulars address J. D. Warrell, Deweyville, Texas. jun

FOR SALE—Fertilizer Distributer and Seed Sower Combined. U. S. Patent No. 1,011,071. Canadian Patent No. 142,439. Also spring railroad tie. U. S. Patent No. 1,046,480. Address, Louis Mehlberger, General Delivery, Detroit, Michigan. jy

FOR SALE—Patent No. 1,045,045, dated Nov. 19, 1912. Lumber piling machine. Designed for handling lumber, logs, rails, or other heavy material, for transferring from a wagon to a stack or in loading and unloading cars, boats and other vehicles. Is adjustable to accommodate different lengths of material. Address, William Larson, Bonner, Montana. jun

FOR SALE—Patent No. 1,061,421. Device to attach to rotary street sweeper for collecting sweepings. Address, John Suszycki, Reedsburg, Wisc. my

FOR SALE—Patent No. 1,076,228, dated Oct. 21, 1913. Currycomb and Cleaner. For further particulars address owner, Nathan W. Price, Route 1, Box 62, Columbus, Miss. my

FOR SALE cash or royalty—U. S. Patent No. 1,075,132. Car ticket holder. Discards one ticket at a time. Adaptable to all sized tickets. Can be carried in pocket. Address, A. Westensee, Galva, Iowa. my

FOR SALE outright—Patent on squeezing and pressing device for fruits and vegetables. Is very simple in construction; can be cheaply manufactured, and does its work perfectly. Address, Mike Nemes, Box 364, Fort Dodge, Iowa. my

FOR SALE—Patent No. 1,075,306. Window sash. Cheaply manufactured. Quick seller. A large profit to manufacturers. Terms outright or part royalty. For copies and information apply to E. C. Shepherd, Linden, Wisc. my

FOR SALE—I offer state right on mineral fertilizer patent granted by United States January 15, 1913. For further information address, Prof. E. C. Lindemann, Boulder, Colo. ap

FOR SALE—Patent No. 1,077,054, patented Aug. 26, 1913. The Hursh Folding Basket. Can be used for all purposes. Will sell outright. Terms reasonable. Address, Albert S. Hursh, Milton, Pa. ap

FOR SALE cash or royalty—Patent No. 1,076,345. Tire shoe for rubber tires of automobiles, etc. This shoe will prevent rubber tires being punctured and to keep them from wearing out. Address, A. S. Bullock, Aitkin, Minn. ap

FOR SALE Patents—or part interest in locks for public buildings. The only both ways operated single or double door locks on the market: catches either way, or makes push doors. Address, A. M. Hoes, Grand Island, Nebraska. ap

FOR SALE—Keep the nuts on your wagon. I have lock nut Patent No. 1,073,009, Sept. 9, 1913, which will do the business and do it right. Will sell outright or on royalty. It will pay you to investigate. Write Ralph Wolf, Box No. 16, Franktown, Colorado. ap

FOR SALE or on royalty—Adjustable razor hoe. Lies flat, and cuts front and back under vines, trees, fences. Shaves grass and weeds. Costs 25 cents. Sells for a dollar. Every yard owner wants one. Address, Wards Coast Lands, Weimar, Texas. ap

FOR SALE cash or royalty—U. S. Patent No. 1,081,417. Smoke consumer for gas and gasoline lights. Prevents blacking and soiling of ceiling and walls. Address, Albert J. Wilkins, Coal Center, Pa. jun

FOR SALE—Patent No. 1,072,654. Photographic film drying rack. Holds any size film. Saves considerable time and trouble in handling film negatives. Will consider any reasonable or even unreasonably small cash offer as I am not in position to promote or manufacture. D. J. Rorabeck, Ryegate, Montana. ap

FOR SALE—Patent issued Jan. 1914. Combination Salt and Pepper Shaker. Has merit. Will meet requirements, and will be a ready seller. Just the thing for mail order business. The man with brains and energy can make a fortune. Will sell outright or on royalty. Address, Hiram D. Kirkley, Paragould, Ark. ap

FOR SALE—The only meritorious railroad rail joint coupling and support ever patented. Worth millions. Will sell cheap. Address, Charles C. Acker, Winnsboro, Tex. ap

FOR SALE—Patent No. 1,064,939, dated June 17, 1913. Adjustable stand for barrels and cans. All offers considered. Address, John Sunkler, Salinas, California. ap

FOR SALE—U. S. patent issued July 8, 1913. A twister shovel plow with narrow land bar, integrally formed. Would make a royalty deal or have them manufactured. A copy of patent and model to one interested. Address, W. T. Simmons, Langley, Ark. ap

FOR SALE—Patent No. 1,073,065, issued Sept. 9, 1913. The Altman fence gap fastener. A clamp to replace gates and bars in wire fences and to make gaps in wire fences quickly and at a small cost. Can be used on any kind of wire fence. Will sell cheap for cash. Write for particulars to George M. Altman, R. F. D. No. 66, Parkers Landing, Pa. ap

FOR SALE—U. S. Patent No. 1,078,475, and Canadian Patent No. 152,467. A vertical oil burner for cook stoves. Will sell outright or state rights. For particulars write, Frederick L. Weeman, 89 1-2 Portland St., Portland, Maine.

FOR SALE—Patent No. 1,043,687. A small crutch to be applied to any make of artificial limb. Is worn under the clothing and gives relief to wearer. Address, William A. Gilbert, 619 W. 127th St., New York City. ap

FOR SALE—I have patent pending, Serial No. 787,960, on an automatic lock for the inside of double doors, such as cupboards and the like, in the place of a hook. In opening the first door, the second door is unlocked, and closing the first door the second door is locked automatically. Simple and cheap to manufacture. Write for particulars, Frank E. Davis, R. F. D. No. 2, Payette, Idaho. ap

FOR SALE—Patent No. 1,022,626, dated April 9, 1912. Self-detaching holdback for all single horse vehicles. Works automatically and obviates the wrapping of shafts. When the traces are detached the draft animal is free to move forward from the vehicle. Will sell the patent at a reasonable price, as I am in the lumber business and have as much as I can attend to. For full particulars address, W. A. Hagerman, 897 Queens Ave. London, Ont. ap

FOR SALE—Cash. Patent No. 1,049,242, issued December 31, 1912. Combined mop holder and wringer. The mop will perform anyone of the three different operations at will and without any adjustment whatever, either as a mop, mop wringer, or scrubber. Walls and ceilings may be cleaned. Simply remove the scrubber. The mop has been thoroughly tested for seven months and has been enthusiastically received by every woman who has tried one. All offers considered. Address, J. W. Krueger, Litchfield, Minnesota. ap

WANTED.

WANTED—Manufacturer to manufacture "Childs Weaving Frame," made of wood. Newly patented. Address, Frank Thomason, 124 Eufaula St., Norman, Okla. my

BUSINESS OPPORTUNITIES.

SMITH'S END-LOCK STOVE PIPE WILL BE A SELLER.

CHAS. F. LAGANKE
MANUFACTURER OF
HIGH GRADE SPECIALTIES
MODELS AND EXPERIMENTAL WORK,
SPECIAL TOOLS.

Card Building, 118 St. Clair Ave. N. E.,
Correspondence Solicited. CLEVELAND, O.

Electrical Review and Western Electrician

Published weekly from the center of the industry, this publication is in the best possible geographical position to gather and present the most important and interesting news of the entire electrical industry.

SUBSCRIPTION PRICE

U. S. \$3.00 per year. Canada \$4.00 per year. Foreign Countries \$6.00 per year. Sample Copy Free

It is seen and read by practically every buyer of electrical material in this country and abroad. Advertising rates on application.

ELECTRICAL REVIEW PUBLISHING CO., 507 Marquette Bldg., CHICAGO.

A NEW BOOK FOR INVENTORS

Patents and How to Make Money out of Them,

By W. B. HUTCHINSON.

This is the only book published, giving a detailed and full account, from the author's actual experience, of just what steps are necessary from the time the invention is conceived, to the time it is sold, with a clear and concise resume of the law and practice, legally and commercially, of trade-marks and copyrights. It also tells accurately how and what to invent. How to sell inventions, place them on the market, interest capital in them, and to successfully promote a stock company. It also contains an index of forms worth double the price of the book to any one interested.

ELEGANTLY CLOTH BOUND

GOLD STAMPED. \$1.00 Postpaid

Sent with one subscription to AGE for \$1.50

Or will sell separately.

Address—**The Inventive Age Pub. Co.,**

918 F St., N. W. WASHINGTON D. C.

HALF-TONES ZINC ETCHINGS
DESIGNS

LANMAN

ENGRAVING

COMPANY

PROCESS ENGRAVERS, ILLUSTRATORS, DESIGNERS.
TRADE-MARK DRAWINGS
EXECUTED.

"Quality and Speed"

POST BUILDING

Fourteenth St., and Pennsylvania Ave. N. W.

Phone, Main 673

SEND FOR YOUR FREE COPY TODAY

OF

MODERN ELECTRICS & MECHANICS.

The big 148-page illustrated monthly magazine that tells you how to make flying machines, wireless sets, motors, engines, home furniture, models, etc., Invaluable to inventors and everyone who uses tools or is interested in mechanics or electrics. Profusely illustrates and describes these subjects in a style you will easily understand and enjoy.

You should read at least one non-technical magazine and keep up-to-date on the new wonders and advances in electricity and mechanics.

Fifteen cents per copy on news stands, \$1.50 per year by subscription.

To acquaint new readers with this distinctive illustrated magazine we will send sample copy free on request.

Send for your copy now.

MODERN ELECTRICS & MECHANICS 813 RELIANCE BLDG.,
NEW YORK, N. Y.

ATTENTION INVENTORS!

LISTS OF MANUFACTURERS FURNISHED.

We have increased our facilities for furnishing lists of manufacturers, and now cover every line of industry. The names are obtained from well known directories.

Our charge for each list is one dollar.

In ordering, please state specifically the class of manufacturers desired.

Address: INVENTIVE AGE Pub. Co., Dept. M. 918 F. St., Washington, D. C.

Every subscriber when sending \$1.00 is entitled to a free advertisement, not exceeding five lines, of any patent in which he may be interested. The ad. will be inserted three times.

THE INVENTIVE AGE PUBLISHING Co., Washington, D. C.

I herewith enclose \$1.00 for one year's subscription to

"THE INVENTIVE AGE."

I also enclose ad. for insertion in the (Patents for Sale*) (Want*) column of your paper.

NAME.....

P. O.

STATE.....

*Please indicate in which column you want the ad. inserted.

N. B.—Remit in the way most convenient.

The Inventive Age

Established 1889.

Published monthly by

THE INVENTIVE AGE PUBLISHING CO.,
National Union Building, 618 F Street, N. W.,
WASHINGTON, D. C.

THE INVENTIVE AGE is sent, postage prepaid, to any address in the United States, Canada, Mexico, Hawaii, and Porto Rico, for ONE DOLLAR a year; to any other country, postage prepaid, ONE DOLLAR AND TWENTY-FIVE CENTS.

Correspondence with inventors, mechanics, patentees, and manufacturers, is invited. The columns of this journal are open for the discussion of such subjects as are of general interest to its readers.

Technical matter is particularly desired. We want practical information from practical men.

THE INVENTIVE AGE is independent.

Special facilities for furnishing cuts of any patented device together with descriptive article. Business specials 10 cents a line each insertion; 7 words to the line. No advertisement less than 25 cents.

Address all communications to

THE INVENTIVE AGE PUBLISHING COMPANY,
WASHINGTON, D. C.

Entered at the Post-office as 2nd class matter.

WASHINGTON, D. C., APRIL, 1914.

THE REGULATION OF ATTORNEYS.

A MUCH NEEDED REFORM

Commissioner Ewing and his able assistants have done much in the short time they have been holding office to improve the work and practice of the Patent Office. They have not spent their time at the U. S. Capitol, hobnobbing with Senators and Representatives, as was the case with some of their predecessors, in an effort to acquire a "pull" sufficient to secure a life tenure in office; but they have patiently and diligently applied themselves to the work before them, attending to the many appeals, petitions and the administrative details of the Office. One has only to read the report of the Commissioner to Congress—which was discussed in the March AGE—to see what a large program of work has been laid out by the head of the Patent Office. It is evident that the Commissioner did not accept the Office with the idea that he would be a mere figurehead, but, on the contrary, there is every indication that he regards public office as a public trust and that the duties of the position shall have his best time and service.

The Patent Office is singularly fortunate in having at its head at this period of its development, men of such integrity, experience and ability as Messrs. Ewing, Frasier and Newton. Never within our recollection has there been a time when there was such unanimity of sentiment among attorneys about the good work of the Patent Office administration.

Having these considerations in mind, we hesitate suggesting anything that would add any burdens to their work, but we feel that the time will soon come, if it has not already arrived, when the Commissioner will see that the good name of the Patent Office requires that some attention be paid to

regulating attorneys who practice before the Patent Office.

The Patent Office cannot, without bringing lasting reproach upon itself, permit the continuation of the deliberate and systematic deception of inventors which is being practiced upon them by certain patent attorneys.

They are numerically few; but because of the past inactivity of the Patent Office, their numbers are increasing yearly. Restrained by no code of professional ethics, with lavish expenditure of money for pernicious advertising, they make up in extent of business for their small numbers.

The last administration evidently thought that the present laws were impotent to correct the existing evil, because during the seven years of his incumbency Commissioner of Patents Moore did nothing but urge upon Congress the necessity for new legislation. In one of his annual reports, he said:

"It is strongly urged that a law be enacted which will provide that before an individual shall be permitted to practice before the U. S. Patent Office, he be required to pass an examination as to his moral, legal and technical qualifications: that a committee be appointed by the Commissioner of Patents, composed of officials of the Patent Office and patent attorneys of well-known standing in the profession, who shall conduct the examination under the Commissioner's supervision, the report of such committee to be subject to his approval. Authority should be given by such legislation to a committee to regulate the advertising of attorneys practicing before the Patent Office and also to pass upon all complaints of improper advertising and other matters which are considered outside of professional ethics."

In the Oldfield patent bill, presented to the last Congress, there were included certain sections designed to carry out the provisions of Commissioner Moore's recommendations; and, while hearings were had on the bill, the latter never got beyond the Committee of the House. We were in favor of that legislation, for the same reason that we favor all laws which tend to elevate patent soliciting to a more dignified plane than it at present occupies; but we are more in favor of it because the interests of inventors are adversely affected by certain persons who, in the role of patent solicitors, are wholly unqualified by their training and experience to practice the profession.

We do not, however, share the opinion of the last administration that legislation is needed to correct the evil practices of attorneys. In 1897, when John Wedderburn & Company were startling the country by their "prize offers" and the award of medals, Commissioner Butterworth found that there was enough vitality in the laws which Congress had enacted, to hale that firm before him, and finally disbar the attorneys despite the bitter fight conducted by said company. The Commissioner's action in taking this step was sustained by the Secretary of the Interior and the

disbarment was not removed until April, 1913. It is interesting to recall what Commissioner Butterworth said:

"It is a novel proposition that an attorney or solicitor may advertise that he has not only consummate ability, large experience as an attorney, and high integrity, but that he has also special facilities for conducting business with the Departments of the Government, and for these several reasons solicits employment as a solicitor to obtain patents, and is employed by reason of those representations: but whether what the solicitor says and does in this behalf is true or false, honest or dishonest, whether in the conduct of business with the Department the agent or attorney is guilty of fraudulent practices in that behalf or not, is a matter of no concern to the Commissioner or the head of the Department; that the solicitor may utilize the offer of the Government to grant a patent as a means and instrumentality to defraud citizens by improperly inducing them to believe that they can readily acquire a fortune by a slight mental effort in the direction of improving on some simple device: that he may falsely represent to those citizens that they will receive advice free; that he may make fraudulent and misleading statements to them in matters which are material and important for the purpose of inducing them to employ him to represent their claims to secure the grant from the Government, and that his methods, whether honest or fraudulent, whether he is practicing law or conducting a confidence game, are matters of which the head of the Department shall not take notice.

"I submit that it is the duty of the Commissioner of this Bureau (and every other bureau of the Government and the head of the Department to which the bureau belongs) to see to it that every citizen transacting business with the Bureau or Department is protected in his rights, and that no individual, whether he is a member of the bar or not, shall utilize his relation to the Department to defraud citizens who have, or who are induced to believe that they have, business with the Government, and intrust that business to a solicitor."

We believe that the Commissioner of Patents has ample power and authority to regulate the business methods of attorneys practicing before the Patent Office, and moreover, that he has equal power and authority to disbar any attorney from practice who fails or refuses to conduct his business in accordance with the prescribed rules of the Patent Office. We believe that the demand for new legislation was a mere excuse for delay. What Commissioner Butterworth did in 1897 can be done by Commissioner Ewing in 1914, and we hope that the Commissioner will feel that his work is unfinished until he has regulated the attorneys practicing before the Patent Office. He is an able attorney himself, and practiced patent law in the way

that it should be conducted. He knows, as every honest attorney does, that the only way to practice patent law is to conduct the business honorably and skillfully and protect the best interests of his clients.

What prompts us to bring this matter to the Commissioner's attention is the bold, and what appears to us to be the defiant, stand taken by some attorneys in their advertisements. One would think that after the Wedderburn disbarment, no attorney would have the temerity to advertise "Prizes for Patents;" "Money in Patents;" "How to Get Your Patent and Money;" "Why Some Inventors Fail;" "Needed Inventions;" "One Million Dollars Offered for One Invention;" "Valuable List of Inventions Wanted." Yet there are advertisements appearing weekly and monthly in the magazines having these alluring and wholly misleading statements, in all of which is a half truth which in effect is worse than a falsehood.

Perhaps they have assumed that because Secretary Lane felt called upon to remove the order of disbarment from Mr. Wedderburn, this administration had let down the bars, and that attorneys could run riot in their odious practices. If those attorneys have obtained such an idea of the attitude of this administration, it is an erroneous one. It is opposed to every precept and practice for which our honored President stands. We are confident that those attorneys who have become emboldened in their methods, and are offering false and misleading inducements to inventors to apply for patents through them, will find that the present administration of the Patent Office will not stand idle and allow inventors to be imposed upon and deceived.

The advertisements of certain attorneys have developed a type of inventors who serve no purpose save to fill the coffers of that class of attorneys. These inventors make it a business to procure patents and sell them to men who are uninformed as to the development of the arts. They are of the class of "speculative schemers," referred to by Mr. Justice Bradley in his decision in the well known case of *Atlantic Works vs. Brady*, whose inventions are usually of a very trivial character, and who are only anxious to obtain some kind of a patent in order to unload it upon an unsuspecting local capitalist.

It is not that type of an inventor we are trying to defend. Fortunately, he is in a very small minority. The general class of inventors are not schemers and are not trying to defraud anyone, but are aiming to improve conditions, and to make them better than they were before. Many of them are ignorant of their rights and are easily deceived. They are deserving of the protection of the Government, and the Patent Office will be recreant in its duty if it fails to hold attorneys to strict accountability in their dealings with their clients and their practice before the Patent Office.

Soliciting patents and conducting

cases for inventors and owners of patents before the courts is an honorable employment and one that requires legal training, experience and integrity; but the fair name of patent attorney has been soiled by the mud and filth of mere commercialism through the methods of some attorneys practicing before the Patent Office.

There is sufficient scope and virility in the laws of this country to correct the evil that exists and to restore the profession of patent attorney to that high plane which it should occupy.

We hope before many months to see the Patent Office take up this matter, and bring before its bar those attorneys who are violating professional ethics and common honesty. Any other course would be incompatible with the high ideals held by Commissioner Ewing, and the good faith of the Democratic administration.

Curved Windows.

A show window which renders objects on display as clearly visible as though there were no glass at all has recently been installed in one of the big New York department stores. The new "shadow-box" window, says *Popular Mechanism* eliminates all reflection and thus avoids the common and annoying fault in the ordinary display which reflects sky, buildings, street traffic, etc., more brilliantly than it displays the merchandise the store offers for sale. The new type of window, which is patented, is divided into an upper and a lower light, the latter extending to a height well above the head of a very tall person, and each glass is curved inwardly. The curve, which has been determined after careful study of optical laws, diverts the rays of light from the street, downward or upward, at an angle at which the diverted light rays strike a black plate which absorbs them. In the ordinary window on bright sunshiny days it is necessary to stand so close to the mirrorlike surface in order to see clearly the goods on display that one's nose must flatten against the plate glass. Window dressers have been obliged to resort to expedients of various colored backgrounds, wide awnings, and interior illumination, with only partial success. In case of shops which wish to display their entire interiors, as piano and automobile stores, the window-box arrangement gives full range of vision, requiring no background.

Burning Iron.

The belief that iron will not burn was exploded recently by a fire in a pile of scrap iron which gave the Plainfield, N. J., fire department several hours' hard work. Behind a machine shop there was a large heap of steel chips from automatic turret and screw machines—a pile eight feet high, containing several car loads. Considering the heap fireproof, the yard gang started a rubbish fire against one side of it. Long after the rubbish had burned out, smoke and flame began to come from the pile of steel chips

and in several places the bottom was found to be glowing white hot. Twice during the next twelve hours the fire department had to be called to fight the fire, and each time after it had been flooded with two powerful streams the fire in the steel chips sprang up again. It burned with a weird, hissing sound, little smoke and only thin yellowish flames, but tremendous heat. The chips had been put through a centrifugal separator and very little oil was left upon them. Hence it must have been the iron that burned. Evidently the metal was so finely divided and presented so much surface to be oxidized in proportion to the radiating surface of the pile that combustion proceeded exactly as in a pile of coal, only faster. The pile sank to one-third its height, but the metal had not melted; where the fire had been hottest the chips simply turned dark blue.

Carpeting a River Bottom.

The bottom of the Mississippi River, or rather portions of it near Memphis, Tenn., is being supplied with a carpet in the shape of gigantic willow mats, woven of willow trees, which are being constructed in sections on the surface of the river itself and then sunk into place. The purpose of this carpet is to keep Memphis on the river, which for several years has been cutting a new channel near the city, threatening to leave it high and dry a mile from the channel of the stream. The turbulent river already has to its credit, or discredit, a score of towns deserted in this manner, with consequences serious enough. In the case of Memphis, however, these consequences would be disastrous almost beyond description: her costly harbor facilities would be utterly ruined and the city left with a huge mud bank between its fine levee and the stream.

The threatened danger was first noted by the Government engineers about a year ago and preparations immediately started to avert it. While the turbulent river has for several years been eating railroads, houses and farms in the vicinity of Memphis, crunching them in its muddy maw and carrying them down to the Gulf of Mexico, it seemed that the hungry stream had at last met something that would check its appetite when a sheer wall of solid rock appeared at Hopefield Point, opposite Memphis, but the greedy river attacked this seemingly unsurmountable obstacle with as keen a relish as it had shown for banks of earth, and it was soon realized that the rock was being undermined.

The willow mats now being placed in the river at that point will, the engineers in charge of the work declare, immediately put a stop to the erosion. Some of these mats are a mile long and 200 feet wide. As fast as a section is completed it is weighted with rocks to sink it into place, and then pinned to the bottom with piles. The Mississippi is the only river in the world that enjoys the distinction of having its bottom carpeted.

Rapid Telegraphy.

The marvelous, in daily use, soon becomes commonplace. It is but a few years, relatively speaking, since the world stood amazed at the telegraph, but now we are inclined to consider this method of communication out of date. The telephone has largely superseded it, and we are on the verge of new methods of rapid telegraphy beside which the old ones seem clumsy and antiquated indeed. The public does not yet realize what a change in the world's correspondence this will involve. At present telegrams cost 25 cents for 10 words for short distances, and they are sent at a slow speed of 15 words a minute, and it usually takes half a day to send a brief telegram to a neighboring city and receive an answer.

The coming rapid telegraph will have from 20 to 70 times the speed of the present-day telegraph. The quick service and low cost which will follow the introduction of these new inventions will bring into existence and develop an enormous business correspondence by wire instead of by mail.

Already one of these devices promises 25 words for 25 cents anywhere in the United States. When the system is fully established and the rates still further lowered an immense quantity of correspondence will be diverted from the slow mails to the rapid telegraph, and thus New York and San Francisco, Boston and Galveston, New Orleans and Duluth, and other widely separated cities will be transacting business with each other, writing telegram letters and getting answers the same day.

Today the great telegraph companies are still sending messages by the Morse method, an operator fingering the keys of a sender at an average speed of about 15 words a minute. When Commander Perry sent his 8,000-word message from Indian Harbor to a New York newspaper it took 20 telegraph operators three days to get it through. The method invented by Patrick V. Delany has a capacity of 60,000 words an hour, and could have put this method over the wires in eight minutes.

Of numerous rapid telegraph systems that have been invented and experimented with, the four most prominent are the Baudot, speed 5,500 words per hour; Murray, 16,000 words per hour; Pollak-Virag, 36,000 words per hour, and Delany, 60,000 to 100,000 words per hour.

The Murray system has been experimented with by the Postal Telegraph Company. An endless paper tape is punched with holes, representing the Morse telegraphic characters, and this tape is fed into a special form of typewriter. An attendant turns a crank and the typewriter works away automatically at about three times the speed an operator could finger it and writes out the message in good typewriter English.

The Pollak-Virag rapid telegraph system is of Hungarian origin and has

been developed in France and was patented the present month in New York City. In operating by this method the system the message is first written on a typewriter, which produces, instead of the ordinary typewritten sheet, a paper tape an inch wide, in which three sets of holes are punched.

This paper tape is then fed into the transmitting instrument, which reels it off at the rate of 600 words a minute to a distance of maybe hundred miles.

The receiver is most wonderful and too complex for intelligible description. It utilizes the electric current to flash minute red points of light, and by means of telegraphic apparatus, and mirrors and a photographically developing apparatus, the characters are automatically reproduced in written characters that anybody can read.

This really astonishing group of mechanisms that automatically translates the work of the typewriter into a written letter hundreds of miles away at a speed of 35,000 to 40,000 words an hour is highly complex in its structure, and doubtless it will be a number of years before it can come on the market commercially. Yet I have seen it work with my own eyes, and know it will do what is claimed under proper conditions.

The Delany system is shortly to be put in operation between New York and Chicago. As in all modern rapid telegraph systems, the first instrument employed is a typewriter, though in this case it is only a typewriter in appearance. The fingering of the keys results in punching two rows of holes in a narrow paper tape, and the positioning or spacing of these holes is such that they can be read or translated in the ordinary Morse dot-and-dash alphabet, familiar to all telegraphers.

This paper tape is fed into the simplest of transmitting machines, where a tiny electric motor reels it off, sending out currents to a receiving instrument that may be hundreds of miles away, at a normal speed of a thousand words a minute. As a matter of fact, it can be run for a short time at two or three times the speed.

The receiver takes down its message on a sensitized paper tape, in Morse dots and dashes. A technical peculiarity of the system is that a "resistance" or "increased capacity" is introduced into the line or circuit, and this novelty permits operation in severe storms and on "leaky" telegraph lines, when ordinary telegraphy would be at a standstill. Not only is this system practically stormproof, but it can be operated over the same wire that serves for telephoning and Morse key work, without interference.

To keep themselves posted in the progress of the arts in which they are interested, inventors and manufacturers should subscribe for the INVENTIVE AGE, which publishes a list of all patents issued each month. The low subscription price and the character of the publication entitle it to the support of all the inventors of the country.

CLASSIFIED list of Patents issued during the month appears in each issue of the INVENTIVE AGE. This keeps inventors and manufacturers posted in the art in which they are most interested.—We will send, postpaid, to any address, printed copies of any U. S. patent, with specifications and drawings, upon receipt of 10 cents per copy.—Please give correct data in ordering.—Address.

THE INVENTIVE AGE PUBLISHING CO., 918 F St., N. W., Washington, D. C.

LIST OF PATENTS

ISSUED DECEMBER 23, 1913.

MECHANICAL PATENTS.

- Abdominal girdle E. M. Martin
Abrading disk C. Krug
Acid manufacture, Acetic N. Grunstein
Acid or oleum, Apparatus for the manufacture of fuming sulphuric
Advertising medium T. L. Briggs et al.
Aerial-navigation propelling and sustaining means M. Pearson
Agitator F. E. Marcy
Air and gas compressor J. H. Hurst
Air-brake-system auxiliary reservoirs, Apparatus for the recharging of H. T. Kleckner
Airship D. G. Newsome
Airship J. E. Allen
Airship speed-indicator and package drop-per F. P. Peel
Alarm device A. Anfero
Alimentary products from soy beans, Manufacturing F. Gossel
Amorphous bodies and product thereof, Treating E. G. Acheson
Atomizer G. J. Kelley
Automatic lubricator R. Wood
Automobile fender J. Didschneit
Automobile rain protector E. J. Armbruster
Automobile skid F. G. Smith
Automobiles, Stretcher or bed for R. L. Bradley
Axle, Vehicle wheel H. M. Tileston
Baby dresser, Sanitary L. A. Jiranek
Bag fastener A. Kaufmann
Bag fastener A. Petrie
Balancing machine J. Wilkinson
Baling-press lever mechanism G. B. Swan
Basket, Portable laundry J. Harris
Bath tub and washstand, Combined G. H. Barker
Bath-tub lining C. H. Price, Jr.
Battery-charging apparatus, Storage C. E. Beach
Bearing S. H. Jones
Bearing, Roller side A. Stucki
Bed warmer J. F. Pettit
Bedstead, Metal R. Mainker
Bellows-operating pedal M. Clark
Belt, Vanner concentrating R. De Large
Boat equilibrator F. Olechnowicz
Boiler flue A. Gunkle
Bolster, Collapsible F. W. Rahm
Bolster-stake holder (2 pats.) C. Faust
Bolt J. S. Wait, Jr. et al.
Book carrier M. Feinen
Bottle-neck valve, Insert J. J. Kime
Bottle, Non-refillable J. W. Freeman
Bottle, Non-refillable G. P. Combs et al.
Bottles, Closure for poison E. S. Crumb
Box or bag, Grab E. B. Rodman
Box or carton C. C. Palmer
Bracelet link G. J. Callahan
Brake shoe W. Gilmore
Brake shoe, Composition-filled H. Jones
Brake shoe, Composition-filled J. D. Gallagher et al.
Brassiere G. Keitel
Bread, Preserving O. Bitter
Brick-cleaning machine A. R. Christman
Brooder, Fireless N. P. E. Ellegaard
Broom dust-collecting attachment S. P. Low
Brush, Fountain F. Schreidt
Brush, Tooth N. E. Paine
Burglar alarm C. S. Head
Burner H. S. Thornton
Button M. V. Gloeckner
Cabinet for disk records P. J. Robinson
Cabinets, &c., Chain for filing C. W. Zimmer et al.
Camera and projecting apparatus, Kine-matograph W. Chipperfield
Can filler, Milk C. A. Patton
Can-top set G. E. Ott
Cap and sunbonnet, Combination E. Ziegfeld
Car construction W. J. Tollerton
Car construction, Tank J. A. Jackson
Car door G. H. Smith
Car-door, Stormproof G. M. Kirby
Car fender J. B. Paxton, Jr.
Car-placard device, Interchangeable C. L. Herbst et al.
Car, Railway R. H. Beach
Car-vestibule diaphragm H. H. Schroyer
Cars, Inclosure for the bodies of motor A. and C. Geissel
Carbureter, Internal-combustion engine O. D. Lucas
Carriage-return mechanism W. Ammerman
Cart-lifting device, Push N. Dupuis
Cartridge J. D. Pedersen
Cartridge-loading machine H. M. Pierce
Casting-machine mold, Slug H. A. W. Wood
Cellulose-acetate manufacture F. Paschke
Chain, bracelet and the like lock, Neck E. Schonemann
Chain, Drive G. G. and L. C. Howe
Channels in streams, Apparatus for deepening S. Bonner
Chemical process A. Hoffman
Chisel O. A. West
Cigar box and humidifier, Combined L. Brenauer
Cigar cutter J. H. Astruck
Cigar-wrapper moistener and container (2 pats.) B. Liberman
Cistern W. H. Reifsnider
Clamp bolt, Locking E. O. Edwards
Clock alarm mechanism E. E. Gage
Clock-crystal bezel W. J. Herschede
Cloth beam J. Northrop
Clothes pin E. J. Munz
Clutch friction member L. Whitcomb
Clutch mechanism E. C. Wills
Coal conveyer O. E. Barene
Coal jigger C. Simon
Coaling station A. B. B. Harris
Cock, Gage W. A. Kitts, Jr.
Coin-handling machine C. M. Grey
Collar, Horse J. Levy
Concrete mixer G. W. Whitworth
Concrete tie, Reinforced C. G. Vandewater
Confection-coating machine P. Panoulas
Conveyer, Pneumatic E. T. Diden
Cooker for oil-bearing meal, Steam A. B. Carr
Cooking and cooling apparatus, Candy-syrup N. Holman
Cooling chest C. T. Rivers
Copy holder (Reissue) B. F. Peetz et al.
Corset, Apparel D. Kops
Corset-stay fastener I. M. Mitchell
Cotton chopper R. Freuler
Crate, Folding L. M. Green
Cuff link G. W. Abraham
Curtain fastener J. W. Tilton
Cuspidor M. Zymoiniska
Damp J. R. Tainter
Dampener W. F. Rutherford
Dampener-controlling device F. A. Kately
Deflector and ventilator S. B. Shipley
Desiccating L. C. Merrell
Desiccating apparatus L. C. Merrell
Die stock R. B. Tewksbury et al.
Die stock H. W. Oster et al.
Die stock R. B. Tewksbury
Digging implement, Hole A. J. Craven
Dish-washing machine J. Baumbler et al.
Display case or the like S. W. Badcon
Display rack F. W. Gibson et al.
Distilling apparatus, Continuous A. C. Badger
Door and window-locking device H. J. Frederick
Door check F. Mertsheimer
Door hanger J. T. McCabe
Door, Metallic C. G. Danielson
Door securer F. A. Herman
Dowel pin H. Hanstein
Draft attachment B. Dahl
Drills, Adjustable arm for multiple spindle E. W. Cleveland
Drilling machine A. W. Coffinger, Jr.
Driving mechanism, Releasable G. A. Anderson
Earth-motion-demonstration apparatus L. D. von Iffland
Electric-conductor-connecting device N. D. Levin
Electric furnace (2 pats.) A. Helfenstein
Electric furnace J. Burke
Electric heater F. Philp et al.
Electric meter, Multirate A. W. Burke
Electric regulation (2 pats.) J. L. Creveling
Electrical-conductor protection, Static-pressure system for G. N. Kercher
Electrical snap switch C. F. Paul
Electrical switch H. R. Gilson
Electrolytic-apparatus diaphragm H. D. Ruhm
Embroidering machine, Jacquard K. Keller
Embroidering machine, Shuttle R. Zahn
Engine-cooling apparatus, Internal-combustion E. de Normanville
Engine piston-ring, Internal-combustion G. R. Rich
Engine-reversing means, Internal-combustion A. E. L. Chorlton
Engine starter, Explosive M. C. Bright
Engine track, Flexible endless traction B. Holt
Engine vaporizer, Internal-combustion K. J. E. Hesselman
Engines, Governing internal-combustion J. S. Anthony
Engines, Removing carbon deposited in internal-combustion H. M. Eller
Envelope opener W. N. Burnite
Evaporating apparatus D. Cozzolino
Excavating machine H. H. Damman
Explosive engine E. Prouty
Explosive engine, Two-cycle J. L. Campbell
Extraction apparatus H. J. Cary-Curr
Eyelets, Binding W. R. Inghram
Fare register L. J. Harris
Fare register L. J. Harris
Fastening-inserting machine F. D. Locke
Faucet S. Held
Faucet W. E. Hodgdon
Feed roller J. B. Ladd et al.
Fence post W. L. McCain
Fertilizer W. E. Carson
Fertilizer distributor S. R. Sikes
Fertilizer distributor E. Middlebrooks
File W. H. Wakfer
Filter, Water S. Held
Fire-protection suit (2 pats.) A. G. Robinson
Firearm S. Korovine
Firearms, Sight for M. P. Nash
Fluid-pressure brake device W. V. Turner
Fly catcher and garbage-can combination G. C. Welter
Fly trap D. W. John
Fly trap R. G. Price
Fly-wheel jack S. D. Stackhouse
Flying machine G. A. Wendt
Folding and guiding device J. McNelly
Folding box and crate C. L. Papish
Frame or easel M. Karp
Friction device L. Whitcomb
Fumigator J. Price et al.
Fuse resetter, Automatic J. B. Elkin
Garden tool E. L. Nolan
Garment support (Reissue) L. G. Dodge et al.
Garter fabric F. A. Freeman
Garter package F. A. Freeman
Gas apparatus, Air F. J. Cox
Gas-generating apparatus C. M. Garland
Gas heater C. J. Rhodi
Gas main and the like trap S. A. Stum
Gas mixture producer A. P. Brush
Gasket and retainer therefor A. E. Hart
Gate-operating mechanism L. M. Stone
Gear, Friction draft H. C. Priebe
Gear generator (3 pats.) E. J. Lees
Gear-wheel detachable teeth E. Weist
Gearing K. C. Likness
Gearing, Transmission E. L. Jones et al.
Gearing, Variable-speed L. D. Green
Goggles L. D. Outler
Grain drill C. W. Davis
Grate, Dumping W. W. Lewis
Grease-plug lock, Automatic A. P. McGlinchy
Gyve lock (2 pats.) F. C. Nagle
Hair pin J. Hughes
Hat fastener W. A. Kitts, Jr.
Hat fastener O. Thielenhau
Hat-pin guard A. L. Burger
Hat, Straw F. Wright
Hay knife J. F. Slusser
Headlight, Movable locomotive E. Simmonds
Hoist, Electric A. S. Blowers
Hollow bodies, Manufacture of (2 pats.) B. Knaebel
Horseshoe L. Lehotzky
Horseshoe calk, Detachable T. L. Haire
Hose coupling J. A. Holloway
Hose supporter J. Bellis
Hotbed W. Ahlen et al.
Incubator attachment M. R. Lowell
Incubators and the like, Thermostatic damper regulator for N. P. B. Ellegaard
Ingots, Manufacture of S. T. Wellman
Injector, Hot-water T. H. White
Inkstand E. Davis
Inkstand J. W. Jacobus
Inkstand (Reissue) F. M. Ashley
Internal-combustion engine H. W. Boleus
Internal-combustion engine M. W. Quiggle
Internal-combustion engine J. Kerner
Invalids or the like, Apparatus for handling A. Skeffington
Iron from rust, Protecting A. Lang
Ironing board G. C. Carr
Irrigator E. Spardel
Justifying mechanism B. F. Bellows
Key fastener W. Klespies
Kinematograph target W. A. Bennett
Kitchen reminder, Perpetual H. H. Ready et al.
Knitting machine M. G. Rosenthal
Ladder, Fish A. J. Collar
Ladder support, Revolving G. W. Rowley
Lamp bracket H. A. Goff
Lamp bulb, Self-locking C. Blass
Lamp, Incandescent A. G. Davis
Lamp, Magnesium flash O. B. Heudrickson
Lamp, Signal J. S. Pixley
Lamp, Signal F. D. Spear
Lamp socket, Electric W. C. Tregoning
Lamp socket, Electric A. W. Clauder
Lamps, Air distributor for central-draft W. A. Penfield
Latch, Gate L. Conrad
Lathes, Indexing device for crank A. M. Sosa
Lavatory fixture E. G. Watrous
Leather-seasoning machine C. E. Slocomb
Leg, Artificial (2 pats.) J. T. Apgar
Lifting jack S. Craig
Lighting fixture E. F. Guth
Linen, Smoothing device for starched L. F. Pease
Linotype-machine attachment J. A. Roshon
Liquids from separated solids, Recovering separating F. I. Du Pont
Logging-car bunk W. Houghton
Loom filling stand F. E. Ashton
Loom heddle frame J. Giardino
Loom shuttle E. S. Stimpson
Loom-stopping mechanism A. G. Koehlin
Loom warp stop-motion A. E. Rhoades
Loom web-carrier chute, Automatic-web-replenishing M. L. Stone
Loom, Web-replenishing E. H. Ballon
Looms having electrical stopping and signaling devices, Current-distributor for power A. G. Koehlin
Lubricator F. C. Jr. and J. J. Fiechter
Machine-recorder-controlling means A. C. Johnson
Magnetic circuits, Water-tight joint for R. C. Patton
Marking machine V. Hoffman
Matrix-plate holder and spacer D. G. Holt et al.
Medicinal composition, Making F. E. Hafnail
Melting apparatus, Portable G. Gabrys
Metal-working machine H. M. Hunter
Milk agitator R. A. Schultz
Milk-retarding apparatus F. R. Monroe
Mining machine (2 pats.) A. H. Gibson
Mixing device W. G. Shelton
Molding device S. E. Wilson
Mop wringer S. C. Lawlor
Mortar from bricks, Removing adhering A. R. Christman
Mortar, Manufacturing a waterproof A. Markus
Motor S. E. Carlin
Motor-starting apparatus, Internal-combustion W. Closson et al.
Motor-cycle seat G. A. Hartman
Muffle furnace L. C. Hamlink
Musical-instrument-operating means E. S. Votey
Muzzle J. W. Thompson
Nipple, Nursing E. E. Jenesa
Nitrous-oxide-administering appliances, Apparatus for C. E. Teter et al.
Nut lock M. Kester
Nut lock J. H. Phipps
Nut lock J. R. Armstrong
Oil burner L. Tozer
Oil burner G. W. McCallen
Oil heater H. Swartlander
Operating adjustable table G. Payne et al.
Orchard heater T. Silk
Outlet box E. W. Bufington
Oven, Adjustable M. Dexter et al.
Pavement, Transparent L. G. Mullen
Penholder J. Bischof et al.
Petticoat M. E. Drake
Pianos, Hammer-rest-rail-operating device for player E. Swanson
Picture-exhibiting machine C. A. Braun
Picture screen, Moving S. H. Jones
Pipe A. W. Larison et al.
Pipe and cigar holder, Combination M. H. Baron
Pipe-guard, Smoking C. H. Robinson
Planter, pulverizer and weed destroyer, Combined A. Veith
Plastic material feeding and cutting mechanism, Automatic A. E. Hopkins et al.
Plow G. W. Haumers
Plow D. Cochran
Plow, Motor O. E. Pattison
Plow, Rotary M. E. Playford
Plumb and level H. H. Lung
Pocket, Safety watch B. C. Dodds
Pole tip E. McCauley
Press-feeding device E. M. Lockwood
Printing compound F. A. Putnam
Printing-machine offset mechanism M. N. Cornack
Printing press A. E. Mowrey
Printing-press-feeding attachment B. F. Upham
Protractor A. P. Ward
Pruning implement G. N. Spencer
Pulley, Lubricating J. T. Hall
Pumping apparatus, Player A. Anderson
Punch W. J. O'Neal
Punch, Can W. B. Keith
Puzzle W. M. Bushfield
Radiotelegraphic station G. G. von Arco
Rail brace and splice, Combined W. M. Palmer
Rail fastening I. A. Miller
Railway concrete track construction K. E. Porter
Railway crossover I. V. Bilyeu
Railway-joint plate W. Goldie, Jr.
Railway-tie plate A. Saari
Railway train control and signal system, Double track F. A. Pierce
Recorder holder, Disk J. C. Frank
Reel W. P. Ray
Relay J. Erickson
Relay device A. Orling
Resin, Vulcanizing glycerol W. C. Arsem
Rewind mechanism A. Anderson
Ribbon holder and measuring device, Combined R. B. E. Kallam
Rim, Demountable R. W. Ashley et al.
Road and street surfacing J. H. Amies
Roll cap F. P. McColl
Roof and tile therefor, Tile J. Freund
Roofing, Means for applying colored designs to composition A. S. Spiegel
Rotary internal-combustion engine F. Miller et al.
Rotary motor and pump J. B. Vernon
Rotary valveless motor D. Crayssac
Rule L. Voggenreiter
Sash M. S. Crane
Sash balance, Spring G. J. MacLaughlin et al.
Sash weight F. M. Green
Scoop or bucket, Drag F. L. Parker
Screw press to form insulators R. G. Hemingray et al.
Seal J. F. Mitchell
Sealing-machine feed, Bottle A. Calleson
Seat attachment, Taudem J. W. Gates et al.
Seeder and planter M. T. Mallory
Semiliquid-material-feeding apparatus A. Schaffer et al.
Separator F. C. Morrow
Sewing and trimming machine J. R. Moffatt
Sewing-machine tucker attachment T. W. Richardson
Shaft boxing C. Thomas
Shaft-brake or friction device F. A. Read
Shaft governor E. Schweter
Shafting-grinding machine H. W. Snyder
Shears O. B. Lintner
Shears C. F. Zimmerman
Shock absorber E. V. Hartford
Shock absorber J. L. Lawrence
Shoe machine, Automatic E. E. Winkley
Shoes, Making felt J. A. Green
Shoes, Making felt J. A. Green
Shuttle, Oscillatory R. Zahn
Sign, Automatic magazine L. H. Watts
Signaling apparatus, Electrically-controlled H. W. Aylward
Signaling system J. Olsen
Signaling system, Electric (Reissue) J. D. Taylor
Skirt M. McCallum
Skylight construction J. B. King
Sled stake and logging bunk, Combined W. A. Humphrey
Slicing bread and spreading butter, jam, meat pulp, &c., thereon, Machine for W. Bagguley
Smoke from furnaces and the like, Apparatus for the treatment of W. L. Thomas
Soap fixture, Liquid E. G. Watrous
Soldering machine M. Karp
Sparkling plug with removable electrode and central telescoping electrode A. L. Cade
Speed-governing mechanism R. P. Deardorf
Speed governor A. Winton
Spoke star, Wheel R. Kronenberg
Sprayer, Chemical and insecticide C. F. Sites
Spring wheel E. R. White
Sprinkler W. A. Parish
Staging and scaffolding bracket E. Scharer
Stamp and label affixer C. Leishman
Stamp-mill-operating means E. Dollar

ISSUED DECEMBER 30, 1913

MECHANICAL PATENTS.

- Stamping machine H. J. Grant
 Stamping, punching or cutting machine
 safety attachment A. H. Lell
 Station indicator C. P. McDonnell
 Stay, Garment D. Schuler
 Steam generator E. Piolock
 Steam generator with forced circulation
 E. Fouque et al.
 Steel, Making P. P. Reese et al.
 Stirrup W. Nusser, Jr.
 Stocking, trousers and the like supporter
 E. Lange
 Stoker N. E. Gee
 Stoker, Furnace E. F. Krell
 Stop motion F. Ainsworth
 Stopping drill, Rock-drilling J. G. Leyner
 Stove shelf, Detachable M. A. Possons
 Stove wick holder, Oil J. F. Bittle
 Stovepipe nest A. G. Scherer
 Structures of the continuous-wooden-stave
 type, Constructing spirally-wire-wound
 H. E. Aine
 Stumps, Removing W. W. Pope
 Switch A. J. Wilson
 Switch mechanism E. J. Pace
 Table and sled, Combination G. V. Meagher
 Tally machine A. Gillespie
 Teeth, Casting artificial H. A. Wienand
 Telephone, Condenser J. Unterholzner
 Telephone indicator T. L. Savin
 Telephone receiver M. Setter
 Tenon-machine gauge A. R. Rumohr
 Threshing machine S. G. George
 Ticket, Transfer W. Klein, Jr.
 Tie W. L. Phelan
 Tie and tie-plate support
 C. W. and F. B. Ackermann
 Tiles, bricks, and mosaics, Setting F. P. Nale
 Time recorder W. H. Bundy
 Tire heater A. E. Stachel
 Tire, Heavy-car F. W. Kremer
 Tire, Resilient C. F. Storhm
 Tire tread D. Marshall
 Tires, Device for preventing excessive pres-
 sure in pneumatic W. H. Van Winkle
 Tobacco pipe U. L. M. Zetterstrom et al.
 Toggle E. J. Fitzgerald
 Tooth fronts, Manufacturing artificial
 T. Steele
 Tooth, Interchangeable T. Steele
 Tooth-regulating appliances, Instrument for
 recording changes in R. H. W. Strang
 Tower or derrick coupling, Steel L. C. Moore
 Track contactor C. W. Ward
 Train-order holder J. Barlow
 Tread, Resilient P. W. Pratt
 Tree protector J. J. Patterson
 Tripod-head J. Tessier
 Trolley G. L. Robertson
 Truck, Delivery W. Lytton et al.
 Truss apparatus J. M. Dunn
 Tug and trace fastener W. E. Seelye
 Turbine J. A. Groshon
 Twisting machines, Thread stop-motion for
 gripping a broken thread in B. Dutkiewicz
 Type-bar-making-machine spacer-handling
 mechanism A. W. Le Boeuf
 Type-metal-treating device E. M. Low
 Type-writer J. E. Molle
 Type-writing machine M. H. Lockwood
 Type-writing machine A. T. Brown
 Type-writing-machine ribbon mechanism
 J. A. Ziegler
 Type-writing machine, &c., stands, Caster
 raising and lowering device for
 A. G. F. Kurowski
 Type-writing-machine tally attachment
 G. F. Watt
 Typographical machine N. Dodge
 Vacuum cleaner P. B. Newkirk
 Vacuum-cleaner handle clips G. Clements
 Valve F. Nielsen
 Valve, Alarm A. C. Rowley
 Valve-controlling apparatus, Automatic
 thermic F. A. Pollard
 Valve, Gas-engine F. C. Gonzales
 Valve mechanism, Electropneumatic con-
 trol W. V. Turner
 Valve, Reducing J. and A. Graham, Jr.
 Valve, Thermally-released check A. W. Carlson
 Vault door G. W. Kinnington
 Vehicle brake N. Blanchet
 Vehicle brake, Automatic C. C. Cox
 Vehicle driving wheel, Motor W. G. Miller
 Vehicle, Motor R. Huff
 Vehicle, Motor L. S. Ross
 Vehicle, Self-propelled F. de Alba B.
 Vehicle steering fork J. A. Hill
 Vehicle suspension spring A. Vermersch
 Vehicle wheel, Road H. A. Pryor
 Vender, Water M. P. Henvis
 Vibration measuring, indicating and record-
 ing means W. P. Digby
 Vibrator I. C. Orswell
 Vibratory device C. A. Peterson
 Voting machine counter carrier C. C. Abbott
 Vulcanizing device J. E. Lancroft
 Vulcanizing mold P. D. Thropp
 Wall construction, Metallic studding metal-
 clip plasterboard partition M. H. Jester
 Warp stop-motion H. Koch et al.
 Warp-tying apparatus H. D. Colman
 Washing device M. P. Freiborg
 Washing machine A. Bowers
 Water and purifying it from germs, Clarify-
 ing R. Gans
 Water-gauge-glass column W. M. Paul
 Water heater J. B. Malen
 Water heater, Automatic B. E. Mechem
 Water motor I. Yassenoff
 Water supply or flush tank F. G. Wangelin
 Weather strip G. C. Vachon
 Weed cutter W. C. Pence
 Weeder R. L. Bengt
 Weighing machine, Automatic B. P. Mulloy
 Wells or rands to stock, Machine for at-
 taching J. Gouldbourn et al.
 Wheel J. W. Collinsworth
 Wind-shield tube D. B. Lee
 Winding machine A. Petersen
 Window lock N. B. Denison
 Window safety barrier B. Swanson
 Window screen C. L. Kelly
 Wine-clearing apparatus M. M. Wheeler
 Wrapping machine A. Hopkins et al.
 Wrench L. Cutler
- Car trolley F. E. Covey
 Carburetor J. W. Parkin
 Carburetor N. Goodyear
 Carburetor attachment J. O'May
 Carriers, Device for opening tubular
 F. O. Hoagland
 Cartridges, Combined base cup and primer
 socket for T. H. Rylands
 Cash register T. M. Sibbald
 Caster, Ball F. W. Morgan
 Cellulose solutions and production of cel-
 lulose products from such solutions, Pre-
 paring E. Berl
 Cement and making the same E. Duryee
 Chain link, Fusible E. R. Leonard
 Chain lock C. A. McCarthy
 Chair J. Lewis
 Channeling machine F. L. Harmon
 Check, Voucher W. D. Myres
 Checkrein lock C. L. Taylor
 Chilean mill, Slow-speed C. C. Lane
 Chuck J. Hartness
 Churn T. H. Gaines
 Churn T. L. Thompson
 Chute, Self-locking fuel A. H. Hobbs
 Cigar-tuck cutter G. W. Bowman
 Cigars, Manufacturing W. F. Metcalf et al.
 Circuit regulator, Pneumatic F. C. White
 Cloth-piling apparatus W. M. Gustin
 Clothes-line reel S. A. Julien
 Clothes lines and the like, Fastener for
 W. G. Kendall et al.
 Clutch W. Smith
 Coal bins, Apparatus for automatically
 loading J. W. Wortham
 Coal-hod attachment R. I. Alverson
 Coal A. Granstrom
 Coffee pot M. Howell
 Coil-forming apparatus J. A. Burns
 Coin holder C. A. Stearns
 Coke conveying and screening mechanism
 T. J. Mitchell
 Collar attachment P. Harrison
 Collar fastener and necktie holder, Com-
 bined J. Weinberg
 Collector M. P. Reynolds
 Coloring matters containing sulphur, Blue
 A. Luttringhaus et al.
 Column J. F. May
 Comb-cutting machine P. H. Kirby
 Combination lock H. C. Stevens
 Combustion engine L. Baumann
 Communion set, Pocket P. Tangjerd
 Commutator brush T. W. Varley
 Commutator slotter F. R. Alley
 Compound-acting dies W. C. Edwards, Jr.
 Compressor, Centrifugal (Reissue)
 S. A. Moss
 Concentrator, Dry E. A. Stephens
 Concrete constructions, Collapsible core for
 hollow C. S. Bunnell
 Concrete reinforce A. E. Lindau
 Concrete sectional pipe and culvert, Rein-
 forced C. C. Allen et al.
 Concrete sectional pipe and culvert, Rein-
 forced C. C. Allen
 Confetti machine G. G. Griffin
 Container, Metal W. J. Werner
 Conveyor M. J. Gibbons
 Coop, Poultry E. W. Philo
 Cork extractor A. L. Ridley
 Corn stringer, Seed F. W. Karli
 Cotton picker E. Gathmann
 Coupling J. Sachs
 Crate, Foldable E. T. Bond
 Culvert W. H. Klauer
 Culvert, Metallic W. P. Du Chemin
 Culvert, Nesting A. A. Ambler
 Culvert, Sheet-metal G. H. Charls
 Curler, Hair J. H. Dean
 Current induction-motor, Alternating
 A. A. West
 Current motor, Alternating B. McCollum
 Currycomb C. L. Fortescue
 Cut-out and compensating socket, Auto-
 matic G. T. Dunklin
 Cutter head H. G. Aldridge
 Cyanogen compounds and the like, Syn-
 thetic production of J. E. Bucher
 Damper-regulating apparatus
 H. B. Weir et al.
 Davenport, reclining couch and bed, Con-
 vertible C. Danielson
 Demijohn washer J. J. Clifford
 Dental bridgework, Porcelain tooth and
 backing for W. J. Stewart
 Dental broach-blank-making machine
 J. F. Hardy
 Dental engine W. D. Wagar
 Dental flask L. T. and J. H. Weaver
 Dental forceps L. S. Hall
 Dental plates, Manufacturing Telle
 Die for cutting wood and similar materials
 (2 pats.) E. B. and A. B. Willer
 Die holder, Flexible F. E. Wells
 Die magazine J. L. Rifer
 Die press F. Waite
 Die press, Automatic E. E. Winkley
 Disintegrating machine R. F. W. Rossberg
 Disks, Single-shaft J. E. Symons
 Display racks, Support bracket for
 M. Mayer
 Displaying machine, Automatic
 W. J. Rowe et al.
 Distilling apparatus J. A. Houser
 Distribution system E. H. Schwarz
 Distribution system H. A. Laycock
 Door hanger L. E. Fournier
 Door key A. Schrader
 Door stay O. C. Rixson
 Drain pipes, Clean-cut fitting for
 H. J. Morris
 Drain trap S. G. Brown
 Dress shield H. P. Rindskopf
 Drill C. L. Anton
 Drilling machine S. E. Hilles et al.
 Drinking fountain D. N. Shrawder
 Driving mechanism, Reversible J. H. Gorman
 Drop press S. H. Dyer
 Dye, Cotton A. Blank et al.
 Dyeing C. Goldstein
 Dyesuffs and making same, Monoazo
 H. Wagner
 Dyestuffs, Azo A. Blank et al.
 Dyestuffs, Cotton (2 pats.) A. Blank et al.
- Elastic fabric G. O. ...
 Electric device A. ...
 Electric generator, Thermo C. ...
 Electric ignition system F. K. ...
 Electric machine, Dynamo E. G. ...
 Electric machines, Magnetic wedge for
 dynamo B. F. ...
 Electric meter
 Electric motor
 Electric switch
 Electric switching device
 Electric transmission of
 (2 pats.)
 Electrical-apparatus coil
 Electrical distribution, Conductor
 C. ...
 Electrical machine, Dynamo
 D. H. Andrews et al.
 Electricity, Device for uniting insulated
 conductors of A. A. ...
 Electrode, Arc lamp C. P. ...
 Electrode, Arc light J. L. R. ...
 Electrode for preventing cathodic reduc-
 tion A. Pictzsch et al.
 Electrotyping molds, Treating G. E. ...
 Elevator G. B. ...
 Elevator-guide lubricator
 Elevator-valve mechanism
 Engine starter, Internal-combus-
 tion F. ...
 Engine-starting device, Explosive
 B. B. ...
 Engine-starting device, Internal-combus-
 tion E. F. Connor et al.
 Esters and making the same, Dissolved car-
 bohydrate W. S. ...
 Excavating machine W. G. ...
 Exercising appliance E. E. ...
 Explosion motor J. MacConaghy
 Explosive engine C. W. ...
 Eye shade and fan, Combined E. J. ...
 Fastener H. Rigert
 Fasteners, One-piece cap for snap
 E. D. Simons
 Fatty substances from oil, Manufacture of
 solid J. Schlinck
 Faucet C. S. ...
 Faucet F. J. ...
 Feed-water heating and purifying attach-
 ment for boilers W. H. ...
 Fence machine, Wire J. A. ...
 Fibrous matter from admixtures, Separat-
 ing J. J. ...
 Film-feeding machine F. E. ...
 Fire extinguishers, Holder for hand
 W. H. ...
 Firearm C. W. ...
 Firearm C. A. ...
 Fish pounds, Lead-in for A. C. ...
 Flashing J. E. ...
 Flax, Retting W. J. ...
 Flooring, Machine for tonguing and groov-
 ing the ends of wood E. F. ...
 Fluid-circulating systems, Impelling device
 for G. W. ...
 Fluid-distilling machine C. P. ...
 Flume P. T. ...
 Flushing device, Water closets P. ...
 Flushing mechanism J. A. ...
 Fly catcher M. C. ...
 Flying machine O. T. ...
 Folding box and the like, Flat G. ...
 Food product R. ...
 Force-feed lubricator W. A. ...
 Forging A. F. ...
 Form, Garment R. O. ...
 Friction device W. W. ...
 Fruit-grading machine L. W. ...
 Fruit picker F. H. ...
 Fume arrester S. I. ...
 Funnel D. B. ...
 Fur-beating machine F. ...
 Furnace F. J. ...
 Furnace front W. A. ...
 Furnace front W. A. ...
 Gauge bracket F. L. ...
 Garbage receptacle C. A. and J. B. ...
 Gas burner J. Antonuccio
 Gas burners, Automatic thermal cut-off for
 A. Tibbs
 Gas-cleaning mechanism N. F. ...
 Gas engine W. A. ...
 Gas-heated iron H. L. ...
 Gas in confinement, Means for the mainte-
 nance of S. E. ...
 Gas producer N. F. ...
 Gases, Treating C. A. ...
 Gear for milling and other machines, Trans-
 mission J. Becker
 Gearing, Transmission K. ...
 Grate, Forced draft T. ...
 Grater, Nutmeg G. E. ...
 Grinders, Feed adjustment for band-saw
 J. P. ...
 Grinding, pulping and pulverizing machine
 H. ...
 Gun carriage, Wheeled E. ...
 Gun, Gas-operated W. H. ...
 Gun having a recoiling barrel K. ...
 Guns having a recoiling barrel, Hydraulic
 brake for K. ...
 Hammer, Fluid-power R. E. ...
 Hammer, Mechanical J. S. ...
 Harness hanger N. A. ...
 Harness rack S. B. ...
 Harrow and pulverier, Revolving knife
 Harrow and pulverier, Revolving knife
 Harvesters, Topping mechanism for vege-
 table O. W. ...
 Harvesting-sack supporter H. ...
 Hasp, Door P. ...
 Hat fastener L. M. ...
 Hatch covering, Air-tight W. W. ...
 Head dress G. ...
 Head gate J. Z. ...
 Headlight J. S. ...
 Headlight, Locomotive J. L. ...
 Headlight, Vehicle P. J. E. ...
 Hides and skins, Depilating and reducing
 O. ...
 High chair, Sulky L. V. ...
 Hinge, Door J. C. ...
 Hooking machine, Helical spring
 F. H. ...

- Hop press and hop strainer, Combined... O. F. Hettlinger
Horn, Exhaust... G. Piscopo
Hydraulic engine... L. Bruton
Hydrocarbon motor... R. Huff
Hydrogen, Production of sulphureted... W. A. Hall
Ice, Apparatus for the manufacture of plate... E. E. Gainer
Ice-making apparatus... J. Humes
Ice-making machine... W. Graaff
Implement, Pocket... M. P. Hermann
Incubator... T. N. Thomson
Insect trap... C. H. Bath
Insecticide... C. Ellis
Insulating means for railway ties and chairs... G. H. Shane
Internal-combustion engine... L. F. Secord et al.
Internal-combustion engine... A. F. Collins et al.
Ironing board and stand... A. G. L. Schwartz
Ironing machine... W. H. Olver
Ironing machine... J. H. Ullman
Isoprene, Producing (2 pats.)... F. Weibel
Jars and the like, Closure for milk... A. E. Ayer
Journal-box wear plate... D. F. Gownare
Journal-cooling device... W. H. Clingman
Knife roller, Mote... J. E. Brady
Knitting machine... O. Laroche et al.
Ladder, Braced step... A. F. Talbot
Lamp... L. J. Kahlo et al.
Lamp, Arc... C. A. B. Halvorsen, Jr.
Lamp bracket... J. M. Powell
Lamp bracket for power-driven vehicles... G. K. Babcock
Lamp burner... F. Danuser
Lamp burner, Safety... P. Schroeder
Lamp controller, Automatic... W. B. Meeker
Lamp, Electric arc... F. Buchanan
Lamp, Gas... H. A. Humphrey
Lamp hanger, Miner's... L. K. Terry
Lamp, Metal-filament incandescent... M. D. Greengards
Lamp socket... W. F. Ankland
Lamp, Vehicle... A. E. MacDonald
Lamps, Contact device for hand... L. Maisel
Lamps, Valve mechanism for gas... F. J. and H. R. Humphrey
Land, Means for improving... R. H. Sparks
Land roller or pulverizer... W. J. Dunham
Land roller or pulverizer... J. Hist
Lantern... J. A. Neill
Lantern, Railway signal... A. A. Ziegler
Lantern, Tubular... A. L. Edwards
Lard-extracting machine... H. E. Paolucci
Lasting mechanism for welt shoes, End... M. Brock
Lathe... C. F. Roth
Lathe work, Truing tool for... C. F. Urban
Lawn trimmer... T. J. Underwood
Lead pigments, Manufacture of... C. D. Holley
Leather-cutting machine... W. Gordon
Leather-cutting machine... J. B. Hadaway
Lens, Trifocal... H. Bolde
Letters, Apparatus for producing imitation type-written... J. A. Lockwood
Lever, Compound... W. V. Gilbert
Life preserver... J. W. Master
Life-saving suit... T. Matthews
Light-diffusing apparatus, Artificial... N. Losey
Liquid, Low-freezing... M. A. Hunter
Liquid receptacle... W. H. Tucker
Liquid resistance... A. Aichele
Lock... E. Zekhauser
Lock and circuit-breaker, Combination... G. J. Buckeye
Lock strike... J. Simler
Locks of all kinds, Safety device with combinations for... L. J. M. Dardeau
Locomotive cross heads, Babbitting machine for... R. Reiber
Locomotive-exhaust tip... J. Carlson
Locomotive, Mine... W. F. Eckert et al.
Locomotives and the like, Reversing gear for... W. F. J. Casey et al.
Locomotives, Equalizing arrangement for... H. A. Hoke
Magnetic qualities of a magnetic body, Improving the (2 pats.)... R. A. Hadfield
Mail box... P. Amadeo
Mail box and collector, Rural route... A. V. Carlson
Mail-receiving and delivering apparatus... J. A. Chambers
Match box... F. A. Strodel
Mechanical movement... L. E. Paris et al.
Mercury bichloride, Apparatus for manufacturing... F. Kaufer et al.
Merry-go-round... T. W. Prior et al.
Metal, Compound... B. E. Eldred
Metal structures, Machine for forming trussed... A. J. Bates
Metal work, Riveted... A. F. Rietzel
Metallurgical furnace... L. A. Smallwood
Milling machine, Vertical... J. Becker
Mitering machine... F. Maximilian
Mop press... R. B. Gilchrist
Mothproof bag and garment-supporting device therefor... L. Geschickter
Mothproof bag, End-opening... L. Geschickter
Mothproof bags, &c., Garment hanger for... L. Geschickter
Mothproof bags, Side-opening for... L. Geschickter
Mothproof rug bag... L. Geschickter
Mothproof rug receptacle... L. Geschickter
Motor-cycle spring front fork... C. G. Stephenson
Mower, Lawn... W. H. Coldwell
Mowing machines and harvesters, Sickle drive for... J. C. Swanson
Music holder, Adjustable... H. J. Kattenhorn
Music-playing instruments, Governor and regulator for mechanical... F. C. White
Music-recording means... M. Clark
Musical instruments, Automatic music-sheet-guiding device for self-playing... G. H. Davis
Musical instruments, Bellows-actuating mechanism for... J. P. Rawls
Musical instruments, Stop-recording action for... M. Clark
Nail... D. MacColl et al.
Nail puller and scraper, Combined... W. F. Hobbs
Napper... A. C. Banm
Navigation instrument... J. L. H. Hand
Nebulizer of liquids... J. H. Stringham
Needles, Machine for making sewing... W. Bühren
Nitrates, Dehalogenization of halogeniferous... C. Uebel
Nitrogen, Apparatus for forming oxides of... J. S. Island
Nozzle, Exhaust... L. C. Mooney
Nut lock (2 pats.)... H. Cheshier
Nut lock... J. W. Gaul
Nut lock... W. R. Powers
Nut, Lock... B. S. McClellan
Oats separator, Wild... W. G. Klauer
Oil and water burner... C. G. Landstrom
Oil burner... H. W. Brent, Jr.
Oil burner, Coal... C. E. Godley
Oil from oil-bearing rock or sand, Extracting... R. H. Johnson
Oiler, Wheel flange... T. Carrick et al.
Ore concentrator belt... P. H. Craven
Ore concentrator, Dry... W. E. Winnie et al.
Ores, Chloridizing... A. D. Ledoux
Ores, Desulphurizing... W. A. Hall
Ores, Desulphurizing and briquetting... W. A. Hall
Ores, Treating metal-carrying... I. Kitsee
Organ coupler... J. Schwertner
Organ, Reed... O. H. Rue
Oxycarboxydiarylcarbinols, Manufacture and production of... M. Weiler
Packing and making same, Rod... A. McLean
Packing, Piston... H. A. Hoke et al.
Packing ring... J. C. Steinbrueck
Panel-board switch... J. A. Obermiller et al.
Paper bottles, Making... J. R. Van Wormer
Paper-box construction... I. Seitzman
Paper, Detaching wall... C. Ellis
Paper drinking cups, Automatic machine for making... E. H. Whitney
Paper drinking cups, Flanging device for... L. W. Farmer
Paper pulp, Preparing... H. Jackson
Paper punch... J. Kros
Paper receptacle... L. W. Farmer
Paper receptacle... I. W. Hollett
Paper vessel... C. T. Bloomer
Pastenrizing... G. Gettelman
Peanut-shelling and grading machine... A. L. and C. H. Steere
Pedal-operating mechanism... J. C. Cake
Pen-filling device... H. and J. H. Taylor
Pencil and other utensil holder... J. Pancke
Perambulator attachment... R. L. Clark
Perch, Vermin-killing poultry... M. Cooper
Perforator... W. B. Hausman
Permanent mold and means for operating the same... C. W. McVane
Permutation lock... A. Fischer
Pharmaceutical compound... E. Fischer
Pharmaceutical compound... A. Thiele
Photograph-drying apparatus... C. L. Otto
Photographic images, Development of... W. H. Caldwell
Photographic lenses, Means for improving the definition of... H. Casler
Photographic-printing machine... J. L. Higginbotham
Piano action... R. H. Mulliner
Pianos, Music holder for... H. M. Kauffman
Picture apparatus, Moving... C. F. Jenkins
Picture gallery, Portable... F. D. Sears et al.
Pile-cutting machine... A. Morton
Piling mechanism... W. M. Gustin
Pin-making machine, Safety... E. S. Ingraham
Pin-tongue holder... T. W. Johnson
Pipe coupling... R. L. Beattie
Pipe coupling, Automatic train... H. Fredricks
Piston ring... H. H. Patrick
Planing machine... W. E. Villinger
Planter, Seed... S. Bruckman
Plow... R. J. Altel et al.
Plow, Ditching... L. E. Ludwig
Polishing curved surfaces... O. C. Wyson
Polishing machine... J. Zywicki
Pork-trimming machine... G. Sawyer
Potato cutter... W. H. Geske et al.
Potato digger... H. M. Houchins
Poultry fountain... A. A. Wester
Press for enlarging holes... F. M. Blount
Pressure governor... G. M. Richards
Print, Relief... I. D. Hurlbut
Printing and issuing tickets or checks of different denominations and for registering and totaling numbers and indicating the totals, Apparatus for... G. A. Julius
Printing-control system... J. S. Duncan
Printing cylinder... A. M. E. Grignard
Printing device... J. S. Duncan
Printing machine... A. L. Sohm
Printing plates, Apparatus for wiping intaglio... H. Georges et al.
Prism, Ventilated... A. Chambley
Propeller, Metallic... P. Jacomy
Pulling-over machine... A. Bates
Pulverizer, Land... A. Pinst
Pump valve... F. H. Elwell
Pump valve and valve desk... A. F. Nagle
Punch... J. L. Cuba
Putty, Bituminous... W. A. Levering
Rail chair... A. E. Schotte
Rail fastener, Insulating... A. J. Bates
Rail-fasting machine... A. Cato
Rail joint... F. Steinbrenner et al.
Rail joint... G. W. T. Anderson
Rails from spreading, Device to prevent... G. W. Carr, Sr.
Railway-cab signal... H. G. Sedgwick
Railway crossing... J. W. Perkins
Railway rails, Cross tie for... H. K. Fletcher
Railway rails upon the ties, Appliance for securing... F. G. Smith
Railway tie... A. Bernier
Railway tie... D. Stevens
Railway tie and rail chair... G. H. Shane
Railway tie, Metallic... H. J. Downey
Railways, Automatic block-signaling system for electric... S. M. Young
Railways, Automatic control system for electric... B. F. Hatches, Jr.
Ratchet mechanism... H. C. Beckwith et al.
Razor, Safety... J. A. Ohlsson
Reciprocating engine (2 pats.)... E. A. Perkins
Reel packet... F. W. Macdonald
Register bands, Machine for producing justification symbols in... E. M. v. Marchthal
Register-door holder, Wall... G. S. Auer
Resilient wheel... F. F. Patzman
Resinous compound (2 pats.)... D. Whipple
Resinous compound, Producing a... D. Whipple
Restraining device... J. R. Inabnit
Revolver attachment... M. Ferguson et al.
Rheostat... R. L. Watkins
Rivet-bolt holder... A. Salucci
Road machine... H. T. Knight
Roadways, Constructing... D. B. W. Alexander
Rolling deep-flanged shapes... T. H. Mathias
Roof... R. W. Burnett
Roofing, Ready-to-lay composition... W. C. Edwards, Jr.
Rosin and turpentine from wood, Obtaining... C. Howard
Rotary engine... H. E. Bonham
Rough box... W. M. Glotfelty
Routing machine... S. Hunter
Rug and making it... M. J. Whittall
Sad-iron holder... G. D. Wood
Safe boltwork (2 pats.)... C. Bartels
Safe-deposit receptacle... H. Bashore
Sample-carrying case... W. Schweitzer et al.
Sand-spreading device... F. W. Snow et al.
Sanding machine... J. Hamacheck
Sash fastener... B. Karger
Sash lock, Ventilating window... M. Shenk
Sash-operating apparatus, Window... W. R. Parsons
Saw and trimmer, Metal... K. Haepfner
Saw guard... J. W. Humason
Saw, Trimmer... G. F. De Wein
Scaffold, Window cleaner's... E. W. Cooper
Scraping tool... P. Full
Screening apparatus... R. W. Dull
Screw-driving mechanism... F. W. Russell
Screw heads, Mechanism for slotting... G. T. Warwick
Screw, Locking... H. Meredith-Jones
Screw, Safety set... J. H. Graham
Sealing apparatus, Bottle... B. Adriance et al.
Sealing cap for vessels... J. A. Hicks
Sealing device for cans, &c... S. W. Milligan et al.
Seals, Machine for manufacturing leaden... D. Debbas
Sectional boiler... J. B. Bernhard
Seed-hulling machine... J. Davidson
Seeder, Fruit... N. S. Griffith
Sewing and other machines, Lighting attachment for... J. W. Love et al.
Sewing machine... R. Rasbach
Sewing machine, Buttonhole... R. Arendt
Sewing machine, Shoe... F. E. Valois
Sewing machine table... J. J. Gedeon
Sewing machine thread pull-off... A. E. Johnson
Shade... P. J. Handel
Shade and hood holder, Adjustable combined... C. G. Rush
Shade bracket... I. M. Flanagan
Shade bracket, Window... A. L. Hennessy
Shade bracket, Window... E. Gibbons
Shade fixture, Window... H. W. Clough
Shade holder... H. J. Morey
Shade holder and curtain-pole support, Window... I. C. Gray
Sharpening and gauging machine, Tool... E. Rorive
Sharpening machine, Razor... J. Persault et al.
Sheet-feeding guides, Driving mechanism for movable... G. Spiess
Shipping case... G. W. Stitzer
Shoe machine... G. Parmentier
Shovel handle, Supplementary... L. Brown
Sickle-bar mechanism... L. O. Ferbrache
Sign, Animated... R. Whitcomb
Silos, Sectional roof construction for... H. M. Thayer
Siphon and starting device therefor... W. F. Stuart
Skirt protector... M. E. Bispham
Sled... C. Stark
Smoke consumer... G. Fetter
Smoke consumer... J. O. Richard
Sole-leveling machine... C. L. Parker
Solvents by use of halogen compounds, Production of... W. E. Masland
Sound record... L. H. Baekeland
Speed mechanism, Variable... D. E. Crouse et al.
Spinning mules, Reversing mechanism for the band cylinders of... J. H. Ryalls
Spoke protectors, Machine for applying... E. L. Williams
Spring wheel... C. N. Sowden
Spring wheel... M. B. Ray et al.
Square, T... G. Foerst
Stakes, Means for supporting and releasing retaining... J. D. Mauch et al.
Stamping machine... F. M. Mahood
Starter, Automate self... A. Borsella et al.
Steam boiler, Water-tube... G. M. Kohler
Steering wheel, Electric-heated... R. S. Smith
Stone composition for building and like purposes, Artificial... A. Rommel
Stool for holding traps... W. Green
Storage battery... A. S. Hubbard
Straw of flax and the like, Mechanism for treating... B. S. Summers
Straw spreader... L. D. Rice
Street or station indicator... J. W. De Ford
Stump burner... W. H. Brasier
Stump burner... H. H. Morgan
Subterranean heater... A. Pick
Sugar container... R. C. Morris
Sulphur, Extracting... W. A. Hall
Sulphur from metallic sulphides, Extraction of... W. A. Hall
Sulphur from sulphides, Obtaining... W. A. Hall
Sulphur, Extracting (2 pats.)... W. A. Hall
Sweep rake... J. H. Hoener
Swingletree hook... H. J. Dingfelder
Table lock... E. L. Marston
Talking-machine-record holder... P. J. Robinson
Talking-machine-record blank... J. Schumacher
Talking-machine sound-box arm... W. W. Zackey
Tanks, Means for automatically regulating flow of liquids from... E. Niederauer et al.
Telegraph system... I. Kitsee
Telegraphy, Cable... I. Kitsee
Telephone switch-hooks, Attachment for controlling... J. Frith
Telephony... I. Kitsee
Tenoning machine... L. Olsen
Tent frame, Collapsible... B. F. Douglass
Textile materials, Apparatus for smoothing hanks of... A. Clavel
Thermal interchanging apparatus... J. I. Lyle
Thermostatic device for varying magnetic field... J. K. Stewart
Thimble, Leather worker's... D. Manson
Thread guide... J. Jeffers
Threshing machine... C. Schurch
Threshing-machine feeders, Lateral conveyor for... A. C. Van Houweling
Tire... W. L. Ross et al.
Tire, Cushion... N. K. Parrish
Tire filler... D. L. Clark
Tire for vehicle wheels, Cushion... A. Casazza
Tire heater... J. Gogel
Tire-inflating mechanism... E. J. Watson et al.
Tire, Inner... J. A. Thomson
Tire, Resilient... R. Curry
Tire, Vehicle... L. H. Ferguson
Tires, Making... A. E. Wale
Tobacco container... O. H. Johnson
Tobacco setter... R. W. Ham
Tobacco-working machine... H. P. Hill
Tool holder... G. A. Taylor
Tool-holding mechanism... G. J. Courtney
Tool, Household... J. C. Forster
Tooth powder... W. E. Danner
Torch... S. H. Tolman
Toy... H. H. and W. Worgan
Toy... J. A. Marx
Traction engine and motor wagon, Combined... A. L. Wyman
Train orders, Means for transmitting... E. W. Dean
Train stop, Automatic... H. G. Sedgwick
Tricycle... M. M. Mallory
Trolley... P. Johnson
Trolley... M. Adamski
Trolley, Convertible... A. L. Behner et al.
Trolley pole... A. R. Christian
Trousers-creasing device... S. Ronda
Trowel, Adjustable plastering... C. M. Howg
Truck body, Motor... R. S. McKeage
Truck, Motor (2 pats.)... F. M. Prettyman
Trunk, Wardrobe... E. W. Hawley
Trunks and similar receptacles, Manufacture of traveling... R. Studdert
Tube-cleaning machine... K. Mathews
Tube cutter... O. Wiedeke
Tube extractor... R. Jentsch
Tungsten and making the same for use as filaments of incandescent electric lamps and for other purposes... W. D. Coolidge
Tuning coil, Loose-coupled... A. C. Gowing et al.
Tunnel form... C. D. McArthur
Turbine-controlling mechanism... W. B. Flanders
Turbine, Elastic-fluid... S. Z. de Ferranti
Turbine, Steam... F. Ljungstrom
Twisting frames, Drip rail plate for... J. Desautels et al.
Type-writer... E. H. Albertson
Type-writing machine (3 pats.)... E. H. Lorenz
Type-writing machine... W. A. Lorenz
Type-writing machine... H. W. Merritt
Type-writing machine... J. A. Ronchetti
Type-writing machine... O. Fischer
Typographic machine... F. C. L. D'Aix
Umbrella cover... A. E. Meyers
Umbrella, Folding... J. Bialozyt
Umbrella, Folding... L. Messinger
Undergarment... W. S. Elder
Vacuum-producing device... H. Taylor
Valve and emergency switch, Combined conductor's... F. Hedley et al.
Valve, Automatically-closing... O. Schmachtenberger
Valve for air brakes, Triple... S. G. Seal
Valve lock... G. W. Cross
Valve mechanism, Automatic... J. S. Goldberg
Valve, Mixing... R. C. A. Holzhausen
Valve, Oscillating... F. A. Goodness
Valve remover... A. E. Stoker
Vehicle, Double decked... L. Spangler
Vehicle, Motor... J. Dain
Vehicle raiser... R. Bean
Vehicle spring... C. A. Boreham
Vehicle spring... M. M. McIntyre
Vehicle top-raising device... R. Sato
Vehicle wheel... F. E. Glasser
Vending machine... C. Mettler et al.
Vine-hulling machine, Green-pea... R. P. Scott
Vulcanized froth, Manufacturing (Reissue)... F. Pfeumer
Wagon... J. C. and J. J. Raum
Wagon box... A. B. Clippinger
Wardrobe, chest, &c., Collapsible... L. Geschickter
Washing machine wringer gearing... O. G. Pfeiffer
Washing-out and refining machine... H. Pattz
Water cooler... P. P. Adolph
Water-heating apparatus... J. B. Beauvais
Water motor (2 pats.)... H. R. Irwin
Water power wheel... W. B. Lefler
Water-pressure and fuel control, Automatic... C. E. and I. J. Bishop
Water-tube boiler... R. Delaunay-Belleville
Wattmeter, Induction... G. A. Scheeffer
Wave motor... E. S. Hemmenway
Weather strip... F. S. Bloom
Weed puller... D. E. Nuttall
Weighing and recording mechanism... G. Moore
Weighing liquids, Mechanism for... W. I. Staaf
Well drill, Electric... H. E. Diehl
Well machinery... M. Hall
Well tubes or casings, Elevator for... P. F. Yungling
Wheel... F. M. Leib
Wheel... C. D. Wines
Wheel attachment... J. Newhouse
Wheel scotch... H. F. Holworthy
Wheels, Cutting helical gear... E. J. Less
Whip socket... C. Mann
Wind shield... F. A. Lawton
Window, Reversible... S. Viragh
Wire clamp... J. A. Fossum
Wood, Preserving... E. E. Somermeier
Work holder... O. B. Gross
Wrench... J. Dolan
Wringers, Gearing device for... C. E. Grienliet
Writing machines, Document binder for multiple... W. H. Remick

ISSUED JANUARY 6, 1914.

MECHANICAL PATENTS.

- Acid, Manufacturing phosphoric F. Brunshwig
Advertising device W. B. Mathewson
Aeroplane E. D. and J. D. Francis
Aeroplane J. Roche
Aeroplane R. Seidelinger
Aeroplane-stabilizing apparatus O. A. Budig
Air brake accelerator J. de Lipkowski
Air heater E. B. Freeman
Airship-controlling mechanism A. Mayer
Alloys, Improving A. Wilm
Aluminum hydrates, Precipitating (Reissue) E. S. Fickes
Aluminum, Obtaining P. C. McIlhenny
Ammonia and compounds of ammonia, Producing F. Rothe
Ammonia, Catalytic production of C. Bosch et al.
Amusement apparatus H. Thurston
Animal trap A. Johnston
Annealing furnace G. J. Hagau
Annealing tray C. J. Nolan
Anti rail creeper H. G. Elfborg
Anvil, Basket A. Bodjack
Apparel, Wearing S. Uyeda
Arm supporter J. D. Rafert
Astronomical apparatus T. W. Wood
Atomizer C. Fellerer
Automobile license-plate holder N. K. Clement
Automobile number-displaying device W. Falke
Automobile seat S. E. Brown
Automobile starting mechanism locking means E. T. Hope
Automobile turn-table J. J. Grammes
Automobile wheels, Shoe attachment for J. W. Marston
Autosled M. Weidner
Bag frame F. A. Fuller
Bag holder C. M. Young
Bag lock N. E. Hooker
Barrel-tap attachment A. von Formacher
Bearing hanger, Ball R. H. Villard
Bearing, Step J. F. Key
Bed, Convertible chair G. Anderson
Bed, Disappearing W. L. Murphy
Bedclothes holder M. C. Irwin
Bedstead, Metal J. M. Adams
Belt splice F. La Belle
Binder, Temporary S. S. Barrett
Boilers, Circulating means for R. D. Jeffreys
Boilers, Steamer attachment for B. Weber
Book, Account H. G. Hook
Book holder W. H. Smith
Book, Loose-leaf F. E. Housh
Book marker W. A. Overbeck
Bottle closure J. R. Dunn
Bottle, Non-fillable N. Nilson
Box W. H. Joslin
Box A. T. Wright
Braiding machines, Take-up and winding-on mechanism for S. W. Wardwell
Brake lever, Ratchet R. H. Blackall
Brake safety device S. G. Down
Breaching strap, Metal B. R. Williams
Brush-making machine G. Kleemann
Brush, Paint W. Taylor
Brush, Shaving H. L. Boynton
Buckle C. G. Fryett
Building D. Craig
Building-material elevator G. Schlosser et al.
Building, Metallic W. W. Taylor
Buildings, Finish for W. C. Harlow
Buildings, Knockdown frame for portable R. L. Kenyon
Bullet, Mushroom T. C. Johnson
Button-attaching machine F. R. White
Cabinet C. T. Sorensen
Cabinet, Hat A. Kunitz
Calendar, Perpetual J. Vogel
Camera, Self-leveling repeating J. N. Johnson
Canning asparagus G. W. Weber
Car W. S. Holdaway et al.
Car arrester, Automatic R. A. Willson et al.
Car-door opener J. W. Carver
Car-door-operating mechanism, Railway F. Seaberg
Car, Dumping R. V. Sage
Car-journal grinder and polisher N. C. Markham
Car, Prepay F. P. Maize
Car seats, Hear-rest for C. R. Saunders
Car, Sleeping E. E. Taft
Car-vestibule diaphragm (Reissue) W. H. Forsyth
Car windows, Dust-reflecting device for R. A. Hammond
Cars, Extensible trap for railway E. H. Sickels
Cars, Speed control for motor S. K. Evans
Carbureters, Air-inlet valve for E. F. W. Alexanderson
Card receptacle J. F. Dunleavy
Carton J. L. Myles et al.
Carton or box, Collapsible L. B. Wilson
Cask-making machinery W. W. Hewitt
Chain mold I. Lablanc
Chain repair link J. Buckley
Chemical compounds, Forming T. A. Edison
Chute, Coal V. Ashworth
Cigar cutter J. H. Astruck
Clamp A. E. Bray
Clamp H. W. Hayford
Clevis for whiffletrees P. H. Boice
Clock, Secondary W. M. Jeffreys et al.
Closet bowl and flush tank, Combined J. W. Fennel
Cloth boards, Making A. M. Chaffee
Clothes pounder J. E. Harrison
Clutch, Friction H. J. Smith
Cock holder, Angle E. Posson
Coffee dripper G. Brown
Collar support L. M. Graubarth
Collar supporter A. M. Green
Combination jack H. H. Ferris
Concrete chute and elevator J. R. Boardman
Concrete dock walls, Building A. J. Mason
Concrete sheet pile, Reinforced B. Victor
Condensing apparatus, Steam D. B. Morison
Condiment holder N. W. Eu Daly
Connector J. L. K. Sorensen et al.
Contact holder A. Sundh
Container stopper E. S. Hopson
Controller attachment C. Ludgate
Cooking apparatus, Electrically-heated J. W. Phelps
Cooking utensils, Automatic water supply for G. L. Biddle
Coop, Knockdown brooder W. Warnick et al.
Cop-forming machine W. T. Smith
Cord-splicing tool M. D. Kilmer
Coru-butting machine W. W. Morral
Corset M. Towell
Cotton chopper G. W. Copeland
Counter and foot-rail bracket, Combined C. F. Eikenberg
Coupling W. H. Griffith
Cover fastening and releasing device W. H. Smith
Cracker or cake box F. J. Immick
Crate J. M. Zwickle
Cream-remover for milk bottles H. L. Reynolds
Cream separators and the like, Shaft-speed indicator for J. K. Stewart
Culvert pipe, Corrugated C. E. Martin
Current wheel O. W. Watson
Curtain roller W. G. Hult
Cutting machine J. E. Collins
Cutting-off-machine head and the like C. R. Carpenter
Decoy P. J. Hindmarsh
Dental brushes, Keying connection for P. N. Souzon
Dental forceps B. Feldman
Dental impression tray S. G. Supplee
Dental sterilizer S. O. Sawyer
Detachable wheel L. Montupet
Dish-washing machine W. Tupper
Disinfectant, Toilet J. G. Rising
Dispensing apparatus E. E. Claussen
Display box, Foldable N. Nielson
Door and gate closer J. Eneix
Door guard F. Mertsheimer
Door hanger A. Perlman
Door hanger C. J. Clifford
Draft gear W. D. Forsyth
Dress L. Guyette
Dress-article protector N. Herzberg
Drill H. Hundrieser
Drill presses, Adjustable multiple-spindle head for A. T. Nelson
Drills, Locking device for hand G. L. Wilcox
Drinking mechanism, Sanitary E. L. McCabe
Dry kiln W. E. Farrell
Dumping box A. J. Shea
Dust collector F. J. Matchette
Dye vats, Apparatus for forming and preparing charges for J. T. Psarski
Dyestuffs and making same, Sulphur W. Hahnenkamm
Electric-conduit connector J. C. Phelps
Electric contacts at adjustable periodic intervals, Apparatus for producing L. A. Graoux
Electric light, Portable C. F. Burgess
Electric traffic-controlling system F. L. Dodgson
Electrically-heated instrument J. A. Chapman
Electrohydraulic controller C. Engberg
Elevator-driving mechanism M. E. Neenan
Embroidery seam, Circular (2 pats.) M. Druckerman
Engine cylinder head, Gas E. S. McClelland et al.
Engine primer, Gas J. P. Schwartz
Engine-starting device, Internal-combustion C. L. Montroy
Engine tank, Gasoline W. H. Smith
Engines, Electrical ignition system for internal-combustion F. Kratz
Engines, Lubrication mechanism for combustion V. Lancia
Excavator and conveyor J. M. Lee
Exhibit or display receptacle W. F. Bode
Explosion motor M. B. Crist
Eye shade and fan, Combined E. J. Williams
Eyeglasses (2 pats.) F. Fels-Leusden
Fabrics during weaving, Treatment of E. Prein
Fastener, Separable H. A. Meyer
Faucet W. E. Sloan
Fence-post stub A. J. Bates
Fence tightener, Wire C. A. Lintecum
Fertilizers, Production of A. Messerschmitt
File cabinet F. L. G. Straubel
Filing cabinet W. J. Thompson
Filing system for clippings J. A. Mudd
Filter, Gasoline C. A. Port
Filter presses, Nozzle and cloth belonging to and used in J. Newton
Filter, Pressure E. J. Sweetland
Filter, Water M. Jackson
Fire-starting device, Automatic J. A. Lighthipe
Firearm J. M. Browning
Firearm, Automatic A. V. P. M. Berthier
Firearm, Take-down C. G. Swebelius et al.
Fireproof shutter or curtain E. H. McCloud
Flakes with sugar, Apparatus for coating J. L. Kellogg
Flat iron, Electrically-heated M. I. Grimes
Flexible mat T. C. McPherson
Fluid-actuated alarm G. R. W. Roberts et al.
Fluid meter W. W. Ledoux
Flusher or water-supply device, Foot actuation B. G. Wenker et al.
Flushing device, Water closet A. von Radich
Flux for aluminum solder H. Hammar
Flying machine C. W. Waller
Folder or carton, Reinforced paper-board protective F. Brock
Food for fish or animals, and a seasoning, Making a T. Suzuki
Foot warmer, Electrical T. Plimley
Formates and the like, Producing J. E. Bucher
Frame construction R. C. Schofield
Fruit, Machine for removing stones from J. Heberling
Fruits and vegetables, Apparatus for sorting and grading H. M. Gilbert
Fuel, Producing gaseous A. W. Southey
Furnace J. F. Wolvin
Furnace H. C. Koch
Furniture, Knockdown article of P. Morrisou
Gaining machine W. O. Fought, Jr. et al.
Galley foot lock W. R. Boyer
Galvanizing or otherwise coating metallic sheets with metal, Apparatus for D. Jones et al.
Garment hook J. P. Williams
Gas burner for blast-furnace gases H. Keibel
Gas iron, Self-heating S. C. Rockman
Gas producer E. Ragot et al.
Gas, Producing J. H. Hirt
Gas-washing and cooling apparatus E. F. Lloyd
Gasket, Pipe-coupling E. W. Davis
Gate C. Moore et al.
Gate N. Williams
Gearing, Changeable-speed W. B. Schortman
Gearing, Dynamo-electric variable F. Collischonn
Gearing, Variable-speed friction J. G. A. Kitchen et al.
Glass cleaner L. G. Hatosy, Jr.
Glass-drawing apparatus W. A. Jones
Glasses, Corner post joint for plate S. C. MacDowney
Glove, Hand-ball J. I. Brokaw
Golf club C. N. Curry
Governor, Marine G. F. Beacroft et al.
Grab hook C. B. Harp
Grade meter J. K. Stewart
Grain separator L. De Vos et al.
Grinding and polishing machine, Stone G. Bohringer
Gunpowder and making the same C. D. McDowell
Halogenated 2,3-naphthylisatins W. Bauer et al.
Hame clip W. A. Pickard
Hame connector T. Suchla
Hammer, Electric J. O. and R. L. Fields
Harrow attachment J. W. Jones et al.
Harvester, Corn C. K. Conner
Harvesting machine, Beet J. Massart
Hat covering W. C. Wetmore
Hat holder J. B. Conrad
Hat pin M. L. Bagley
Hat-pin guard L. A. McLain
Head gate J. T. Fitch
Heat distributor P. P. Merrill
Heating apparatus R. Sulzer
Heating material containing liquid, Apparatus for T. Franke
Heating system P. Robert
Hinge for coach doors, Concealed C. C. Kusterer
Hoist, Electric H. B. Shreve
Horseshoe I. Pollinger
Hose coupling M. C. Hutchinson
Hose splice J. H. Bradnack
Hydrant F. J. Miller et al.
Hydrant R. H. Thorne
Hydrogen peroxide, Producing A. Pietzsch et al.
Ice card or signal O. Schmachtenberger
Igniter H. Buttner
Illuminated fountain S. Lechner
Incubator heating system L. W. Emler
Incubators, Egg-turning tray for H. A. Templeton et al.
Index and folder, Extension W. A. Overbeck
Ingots, Making L. W. Southgate
Ink distributor, Printing J. F. Harrell
Ink well A. W. Schirl
Insulating compound T. A. Edison
Insulating material and making the same J. C. Peabody
Internal-combustion engine R. S. Ellis
Iron and brace C. L. Tucker
Ironing board L. M. Carter
Ironing-board-cover fastener T. M. Brookman
Jacquard T. A. B. Carver
Jar-cap straightener, Fruit C. E. Helke
Journal box W. E. Crist
Kettle F. J. Weber
Kitchen fork O. E. Pontious
Kitchen sink J. Berg
Knitting machine N. McFadden et al.
Knitting machine, Rib R. W. Scott
Lacer, Shoe J. J. Thomas
Ladder, Step D. Jones
Lamp, Acetylene F. E. Baldwin
Lamp, Automobile W. F. Doerner
Lamp burner, Oil F. E. Baldwin
Lamp, Electric-arc H. H. Boney
Lamp for automobiles, Electric search J. Gallay
Lamp, Incandescent (2 pats.) S. O. Hoffman
Lamp, Incandescent electric T. W. Lowden
Lanterns, Standing bail for H. C. Engfer
Lasting-machine work support J. E. Crisp
Latch and lock, Combined H. A. Palmer
Lathe, Automatic turret W. L. Miller
Lavatory device D. J. Matthews
Leather, Disinfecting hides and skins in the manufacture of O. Rohm
Leather marker H. W. Gordon
Level and plumb, Combined W. C. Getschow
Lever-locking device, Control J. W. Boulton
Lever regulator, Automatic clutch W. E. Eastman
Life saver, Armored tube J. Markson
Line indicator and signal C. N. Wilson
Liquid-fuel burner S. M. English et al.
Lock E. H. Dohse
Lock W. E. Deibert
Locks, Reversible box strike for J. R. Fletcher
Locking device, Automatic trip and self T. L. Johnson
Loom, Jacquard G. W. Stokes
Lubricating system H. F. Maranville
Lubricator L. Kassander
Mail-bag-receiving device D. W. Millsaps
Mail carrier C. Lobsgier
Mail-marking machine G. H. Barbour
Mail-receiving and delivering device R. Glenn
Mail-receiving receptacle J. W. Cutler
Manure loader M. E. J. P. and J. V. Foley et al.
Marker and register, Combined G. H. Grayson
Massage device A. F. Luzzi
Mausoleum C. E. Bryan
Measuring device J. A. Ikwitsch
Measuring instrument, Combination W. J. Robinson
Metal-strap ends, Tool for joining E. E. Flora et al.
Measuring instrument, Lens C. J. Truitt
Messages between a station and a moving car, Means for the interchange of O. H. and J. L. S.
Metal wheel H. H. Addicks et al.
Metallurgical furnace L. Addicks et al.
Milk, Curdling J. Breiske
Mills, Lining for ball or pebble H. A. Henson et al.
Mixing S. L. Bogg
Mines, Exhaust apparatus for B. Piskun
Moldboard L. S. Ferris
Monitor H. C. K.
Mop head and wringer, Combined L. O. B.
Mortising and tenoning machine W. D. Kelly
Motion into intermittent angular motion, Device for converting continuous rotary H. F. E. S. Dussers
Multiple-cylinder expansive-type engine O. Kerscht
Music-sheet driver for automatic players F. W. Draper
Music spools, Socket piece for holding E. Ketterer
Musical string instruments, Tuning peg for E. Glaeser
Neck pad R. Dittner
Necktie frame or fastener A. O. Miller
Needle, Bloat W. F. Sweet
Non-skidder W. Wetzel
Nut and bolt lock H. H. Walker et al.
Nut lock C. Prejan
Nut lock R. A. and H. D. Bowers
Nut lock G. Q. Dewey
Oiler for whetstones O. M. Ries
Oiling device F. F. Grayham
Ore concentrator C. I. Glassbrook
Ore separator A. E. Bookwalter et al.
Oven, Electrical drying H. J. Cary-Curr
Packing composition, Joint J. Whitcomb
Packing, Valve S. M. Purington
Pan lifter W. B. Dunson
Paper-delivering means, Gravity toilet C. E. Anable
Paper-feeding mechanism W. H. Parham
Pattern hanger and ticket holder, Combination J. W. Kuhrt
Peanut stemmer J. H. Macleary et al.
Peat and the like, Treatment of E. A. Buckle
Pencil holder R. Jones
Pencil sharpener H. L. Adams
Pencil sharpener N. Fosskov
Pendant, Chain W. J. Gagnon
Pendulum, Device for maintaining the equilibrium of W. Luyken
Perforated strips, Production of T. A. Edison
Perforating device A. Kettlich
Perforating machine T. A. McCall
Perforating machine C. J. Duggan
Permutation lock T. Carroll
Pessary, Flexible occlusive A. Asch
Piano, Player J. H. Beck et al.
Piano sounding board H. J. Eilers
Picker check S. S. Stacneck
Picture-exhibiting and sound-record machines, Synchronizing I. Kitzley
Picture-film mender, Moving H. A. Burley
Pillow and body support, Combined adjustable A. Ebbecke
Piston engine W. Kuhn
Planer and excavator, Shale J. M. Powell
Planter attachment J. A. Johnson
Planter, Hand corn J. Sommer
Plastic substances, Continuous mechanical manufacture of objects from O. Eberhard
Plow H. R. Boals
Plow J. W. Richardson
Plow, Gang C. Christensen
Pneumatic brake F. J. Chapsal et al.
Polishing appliance J. P. Robertson
Potassium or sodium compounds out of feldspar or mica or the like, Producing soluble A. R. Lindblad
Power shovel W. R. Litzenberg
Power-transmission mechanism J. H. Hollen
Pressure and vacuum gauge F. Schubert
Printing machine, Ticket J. H. Bair
Printing machines, Adjusting device for pattern cylinders of C. F. M. Kroenert et al.
Printing-press-bed-reversing mechanism S. I. Meseraull
Printing-press-roll-renewing attachment (Reissue) J. T. Peto
Printing presses, Means for supplying and feeding paper to (Reissue) L. F. Pfister
Profile and cross-section plotters E. A. Zorsch
Pulverizing mill J. H. Kelly
Pump and compressor or the like, Centrifugal H. Guyer
Pumps, Volume-indicating mechanism for centrifugal A. E. Guy
Pumping plant G. A. Ungar
Purifier J. P. Farmer
Rail-frog guard C. A. Caldwell
Rail joint J. W. Enright
Rail-joint bars, Making (2 pats.) B. W. W. Hauptner
Rail loader M. Feeney
Rail-securing device W. L. De Remer
Rail-supporting and fastening device D. L. Braine
Rail tie M. T. Hansen
Rail tie and joint C. V. Wilford
Railway cattle gate W. G. King
Railway cross-tie C. M. Gunter et al.
Railway rail J. B. Baum
Railway rails, Means for supporting B. F. Wise
Railway spike C. E. Prowell
Railway systems, Circuit-breaker connection for electric F. E. Case
Railway tie J. G. and C. C. Dinger et al.
Railway tie and fastener C. L. McCrary
Railway tie, Metallic L. Gruenfelder
Railway tie plate S. Downs
Railway tracks and applying ballast thereto, Machine for raising and lowering W. F. Sparks
Razor blade stropper F. D. Jones
Razor stropping machine J. H. Clauss
Reamer A. Koeber
Receptacle C. S. McCord
Receptacle, Food J. Wright
Reel A. F. Rietzel

Reflector attachment.....J. J. Hoover et al
 Reflector, Opaque.....T. J. Little, Jr.
 Rein, Knotless hitching.....S. Joseph
 Relay.....S. R. Stone
 Resilient wheel.....W. A. Gehringer
 Resilient wheel for road vehicles.....
A. M. de Palacio y Garcia et al.
 Resurfacing tool.....J. H. Richardson
 Rock cutter, Rotary.....J. W. Cook
 Rock drill chuck.....J. C. H. Vaught
 Rod clamp.....J. J. Ripper
 Rolling mill.....E. Thomas
 Roost, Bat.....G. A. R. Campbell
 Rope clamp.....P. Arbon
 Rotary engine.....W. D. Troutman
 Sad iron stand.....M. Levy
 Saddle, Harness.....C. H. Grings
 Saddle, Spring.....W. Hawkins et al.
 Safe, Express.....J. Holek et al.
 Sand molds, Ramming.....H. P. Macdonald
 Sash holder.....G. Wedel
 Sash lock.....S. S. Mohn
 Sash, Window.....W. S. Frazier
 Sash, Window.....E. P. Sloss
 Saw blade, Circular.....J. Wettstein
 Screw plate.....C. C. Russell
 Screw threads in cylindrical metal articles,
 Forming.....E. R. Douglas
 Seal, Envelop.....W. J. Ringer
 Sealing machine, Bottle.....W. F. Stone
 Seeder.....J. L. Jones
 Sewage, Treatment of.....T. K. Irwin
 Sewing machine, Blindstitch.....C. Atherton
 Sewing machine, Buttonhole.....J. Kiewicz
 Sewing machines, Adjustable connecting
 rod for.....J. L. Ohlson
 Shade fixture, Window.....A. Dango et al.
 Shampooing device.....J. Sparenburg
 Sharpener, Disk-harrow.....L. Carson
 Sharpener, Knife.....E. B. Haywood
 Shears.....D. W. Van Tine
 Sheet metal can.....F. Westerbeck
 Shelf bracket, Single piece.....O. L. Smedberg
 Shelf rail.....E. P. Eustis
 Shell filling and loading machine.....H. Talley
 Shirt.....A. F. Chase
 Shock absorber.....J. Dunn
 Shoe.....J. Wehrwein
 Shoe stretcher (2 pats.).....E. M. Oswald
 Shower bath.....E. C. Oswald
 Shuttle motion.....G. G. Grower
 Sickle guard point shield.....J. W. Catta
 Sieve, Reversible sample separating.....
C. R. Anderson
 Sieves, Motion-imparting mechanism for
 bolter.....J. W. Barret
 Sign, Illuminated.....O. Grahmann
 Signaling system, Electric.....J. D. Taylor
 Signature handling mechanism.....E. R. Kast
 Skirt frame.....W. Ruggeberg
 Skiving machine.....A. W. Eaton et al.
 Sled, Bankable flexible.....M. Walker
 Sleeve holder or clasp.....G. M. Burgess
 Sling, Self adjusting equine.....
W. M. McFadden
 Smoke consumer.....W. Kelly
 Soap, Making disinfectant.....W. A. Waltke
 Soldering-iron attachment.....C. Hermann
 Space block.....H. Geisenhoner
 Spanner or wrench.....W. Endlein
 Spectacle frame.....F. A. Persohn
 Speed-indicator ship's logs, Navigator's.....
H. H. Cummings
 Speed-transmission device, Variable.....
C. E. Clark
 Spring wheel.....L. W. Brown
 Springs, Machine for making coil.....A. J. Lewis
 Stalk chopper.....O. F. Scott
 Stalk chopper.....O. F. Scott
 Stamp, Hand.....T. L. Parker
 Stanchion.....H. L. Ferris
 Stapling strip.....H. A. McGee
 Station indicator.....B. Rivkin
 Stereopticon and motion-picture machines,
 Burner for.....F. W. Bell
 Stereopticons, Motion slide for.....S. L. Gilmore
 Stereotype.....J. J. C. Smith
 Sterilizing and preserving apparatus.....
N. J. Darden
 Sterilizing and preserving apparatus.....
N. J. Darden
 Stirrup, Safety.....H. C. and J. E. Upton
 Stitching machine, Buttonhole.....J. Kiewicz
 Stitching mechanism, Shoe sole.....H. Michelson
 Stocking.....J. R. Foster
 Stoker, Locomotive.....D. F. Crawford
 Stone pulp, Device for removing water
 from layers of artificial.....A. Hermann
 Stopper cap.....R. H. Maloney
 Stopping device, Automatic.....W. H. Yetman
 Storage battery.....T. A. Edison
 Store-front construction, Ventilated.....
G. C. Hester
 Stove, Cook.....G. W. Montgomery
 Stoves, Water-boiling attachment for gas.....
C. Lefebure
 Stripping tool.....J. E. Schmandt
 Sugar from cane, Making.....F. G. P. Leao
 Superheater units, Manufacture of.....
C. K. Lassiter
 Swimming apparatus.....H. Crawford
 Swimming device.....P. J. Caspers
 Swing.....G. M. Cohee
 Swinging table, Ship's.....V. A. Treadwell
 Switch.....J. S. Lockard
 Switch buttons, Means for operating de-
 vice.....A. Kaufman
 Switch opener.....H. J. Lantz
 Switch shield.....H. H. Jones
 Switching socket or connector.....G. C. Knauff
 Tack, Shoe.....C. Pendzialek
 Teeth, Dental pin for artificial.....
H. A. Edwards et al.
 Telephone desk set.....H. L. Knight et al.
 Telephone mouthpiece with antiseptic at-
 tachment.....T. Duquette, Sr.
 Telephone receiver, Loud-speaking.....
C. Adams-Randall
 Telephone transmitters, Protector for.....
H. Van Hovenberg
 Telescope mounting, Rifle.....A. L. Lowe
 Tenon fastener.....H. P. Neptune
 Textile materials with liquids, Apparatus
 for treating.....C. W. Fulton
 Threshing machine.....J. W. Newsom
 Ticket cutter.....T. V. Williams

Ticket registering and indicating device,
 Automatic.....A. Kiparski
 Ticket-sales register.....A. Kiparski
 Tide motor.....W. Braunsdorf
 Tire.....P. Richter
 Tire, Automobile.....C. J. Butts
 Tire for vehicle wheels, Resilient.....
D. H. Donachy
 Tire-inflating apparatus.....O. Ebert
 Tire-inflating system, Pneumatic.....
C. P. McDowell et al.
 Tire, Non-puncturable pneumatic.....E. F. Rolff
 Tire, Pneumatic.....J. F. Palmer
 Tire shoe, Non-skid.....H. Strongson
 Tires, Air-tube for pneumatic.....W. R. Blowers
 Tires on wheels, Fixing rubber or other.....
T. K. Clark
 Tool, Pneumatic.....H. E. Le Gendre
 Tooth-cleaning instrument.....G. W. Swope et al.
 Tower spar.....E. A. and J. F. Gaskill
 Toy cannon.....H. R. Gilson
 Traction engine.....S. Murta
 Tractor-steering device.....A. Stenquist
 Train-controlling device.....J. J. Brennan
 Translating and selecting system.....E. C. Molina
 Trellis.....J. Lytle, Jr.
 Tripod head, Panoramic.....E. N. White
 Trolley.....E. Washington
 Trolley roads, Automatic switch for.....
R. V. Cheatham
 Trombones, Water-key for.....J. Krause
 Truck.....W. J. Adam
 Truck side frame, Forged car.....W. D. Forsyth
 Truck side frames, Forging for car.....
W. D. Forsyth
 Truck-steering mechanism.....H. H. Harris
 Trucks, Brake arrangement for six-wheel
 (Reissue).....W. H. Lewis et al.
 Trunk lock.....M. R. Cowell
 Trunk lock.....F. S. Aliano
 Turpentine and resin extractor.....J. H. Castana
 Type lines, Clip for locking.....G. T. Trundle
 Type-writers, Erasing device for.....
H. I. Seddon
 Type-writing machine.....J. Felbel
 Umbrella.....J. Mackert
 Umbrella.....C. L. Atkinson
 (Lilin.) (or-) (J.) (ere) bmw bmw bmw
 Undergarment.....E. T. Williams
 Vacuums in X-ray tubes and the like, Pro-
 ducing high.....C. A. Friedrich
 Valve for controlling fluid-pressure.....
R. Freer et al.
 Valve for jarring machines.....R. F. Ringle
 Valve, Internal-combustion.....O. Ernst
 Valve, Steam-pressure-regulator.....F. C. Ronk
 Vat heater, Hydrocarbon.....R. K. Kirkwood
 Vehicle driving mechanism, Motor.....
F. Collischonn
 Vehicle fender.....D. Ghezzi
 Vehicle folding top.....A. N. Chenoweth
 Vehicle, Motor.....V. Link
 Vehicle speed control, Self-propelled.....
W. J. Perkins
 Vehicle spring.....C. H. Goschke
 Vehicle steering mechanism.....J. E. Hanger, Jr.
 Vehicle wheel.....C. F. Womeldorf
 Vehicle wheel.....G. F. Tadini
 Vehicle-wheel, Resilient.....P. H. Shailer
 Vehicles, Train of wheeled.....M. J. Todd
 Vending device, Coin-controlled.....
W. E. Gatling
 Vending machine.....H. J. Keating
 Vending machine, Coin-controlled.....
W. O. Amsler
 Vessels, Fitting submarine signaling ap-
 paratus in.....S. Lake
 Violin and making the same.....H. Tietgen
 Wagon jack.....P. A. Hunter
 Washing-machine gearing.....W. H. Decker
 Water bag.....F. W. Burch
 Water closet.....A. N. Crawford
 Water fountain.....W. H. Guthrie
 Water purification, Apparatus for thermal.....
H. F. Hodges
 Water-tube boiler.....R. Delauney-Belleville
 Wedge-bolt lock.....H. C. Martz
 Weighing machine, Automatic.....
J. P. Clifford et al.
 Welded joint for iron and steel pipes and
 tubes.....J. G. Stewart
 Well-casing guide.....W. M. Sousae et al.
 Wheel-flange lubricator.....J. H. Miner
 Wheels of road vehicles, Detachable rim
 for.....A. F. Gunstone
 Whiffletree.....H. Rasmussen
 Wind shield.....F. J. Falter
 Window-cleaning device.....W. J. Starn
 Window frames, &c., Machine for cutting
 weight pockets in.....F. H. and C. D. Weeks
 Woodworking tool.....A. E. Lipscomb
 Wrench.....O. Mullins
 Wrench.....J. Sonthierner
 Yoke for draft gears.....C. J. Nash
 Yoke, Neck.....H. Rasmussen
 Zinc, Precipitation of.....F. L. Wilson et al.

ISSUED JANUARY 13, 1914

MECHANICAL PATENTS.

Adding and listing machine.....R. E. Benner
 Aeronautical apparatus.....E. Bonillet
 Aeroplane.....C. M. McMahon
 Aeroplane.....J. L. Rugg
 Agricultural machines, Driving device for.....
E. Kund
 Air brake.....G. B. Wolf
 Air brake, Compressed.....J. de Lipkowski
 Air brake, Electrically-operated.....H. L. Tooker
 Amusement device.....C. O. Bosworth
 Anchor, Wall.....I. B. Malaby
 Anesthetic-administering apparatus.....J. S. Pyle
 Animal trap.....C. T. Darling
 Ankle support and protector.....H. J. Collis
 Apparel, Attaching fastening devices to
 wearing.....W. Kops
 Autographic registers, Feed-rolls for.....
H. Konerman
 Automatic coupling for railway, tramway
 and other vehicles.....A. D. Smith
 Automatic coupling for railway, tramway,
 and similar vehicles.....A. D. Smith
 Automobile chassis.....C. C. Keyser
 Automobile clutch-lever lock.....G. P. Smith

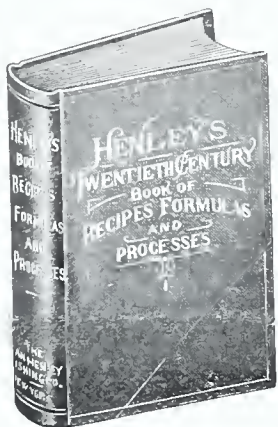
Automobile sleigh.....R. F. Goy
 Automobile wheel.....E. G. Glaser
 Autotractor.....C. L. Best
 Autovehicles, Ruuner attachment for.....
C. A. Wiberg
 Aviation apparatus.....J. F. Cooley
 Axle box and other bearing.....
J. B. Beadman et al.
 Bag-tying machine (2 pats.).....H. A. Klemm
 Bait, Artificial.....R. T. Wilson
 Baling press.....E. C. and N. H. Sooy
 Bandage clip.....P. S. Bauer
 Bank, Registering.....F. H. Mooney
 Bathing garment.....W. W. Pelton
 Beam-splicing clamp.....T. Siderits et al.
 Bearing, Shaft.....O. F. Bruman
 Bearing, Side.....G. L. Allen
 Bearing, Thrust.....B. S. Lawson
 Bed-rail fastening.....M. B. Okun
 Belt, Apparel.....W. A. Simmons
 Belt stretcher.....G. H. Ermisch
 Binder, Loose-leaf.....J. C. Merwin
 Block mold.....M. Moore
 Boat.....G. Dubois
 Boat or like craft, Flying.....J. D. Cooper
 Boiler-tube cleaner.....D. M. Myers
 Boots, leggings and gloves, Fastening for.....
N. A. Didierjean
 Bottle holder.....W. G. Young
 Bottle holder.....C. F. Madden
 Bottle holder, Nursing.....G. A. Hanks
 Bottle, Non-refillable.....M. Switzer et al.
 Bottle, Non-refillable.....P. E. Warren
 Box carrier.....J. F. Blessing
 Box-cover opener.....F. O. Lidholm
 Box-covering machine.....H. De Smith
 Box-fastening device.....W. H. Forsyth
 Braiding machine.....T. H. Jones
 Brake-controlling device, Automatic.....
G. C. Sweet
 Brazing clamp, Adjustable.....G. H. Cargin
 Brick.....J. G. Barbour
 Bridle bit.....C. W. Green
 Briquets, Making.....M. Platsch
 Brush for cotton cleaners.....E. A. Rozier
 Brush-making machine.....D. L. Chandler
 Buckle.....R. S. Avelsgard
 Buckle attachment, Belt.....C. W. Hodgson
 Buckle, Baling tie.....G. W. Furth
 Bullet, Mushroom (2 pats.).....T. C. Johnson
 Burners, Mixer cap for gas range.....
H. P. G. Norstrand
 Butter-making machine.....P. Hanson
 Buttoner, Collar.....W. Goldstein
 Buttons, Spring device for spring-pressed.....
H. Waldes
 Cable support.....P. K. Musselman
 Calendar, Desk.....A. E. Bates
 Camera shutter.....J. H. Dolby
 Cameras, Adjustable combination-shield at-
 tachment for.....W. L. Scott
 Can.....C. S. Whipple
 Cane mill, Sugar.....C. Bosse
 Caoutchouc-like substance, Vulcanized (5
 pats.).....F. Hofmann et al.
 Caoutchoucs substance and making same.....
F. Hofmann et al.
 Cap, Automobile.....A. Plotkin
 Car.....W. H. Yost
 Car-brake apparatus, Safety.....J. C. Boyd
 Car-brake-operating means, Railway.....
J. W. Keeney
 Car coupling.....A. L. and B. L. K. Roberts
 Car-door-operating mechanism.....E. M. Moller
 Car, Dump (2 pats.).....K. H. Hansen
 Car-dumping apparatus.....J. H. Cotton
 Car-dumping mechanism (2 pats.).....
G. H. Hulett
 Car, Freight.....D. E. Peterson
 Car-roof frame.....W. S. Bidle et al.
 Car Ventilator.....A. H. Marden
 Cars, Hand brake for railway.....C. Bolen
 Cars, Automatic air and steam coupling
 attachment for railway.....H. Videbak
 Carbon, Apparatus for graphitizing.....
P. L. T. Heroult
 Carbon holder, Screwless.....W. W. Wile
 Carbureter.....F. S. Pierce
 Carburetor.....H. A. Ireland
 Cash check.....J. D. Gibbs
 Casket, Interior.....F. M. Humphrey
 Catalytic reactions, Effecting.....
O. C. Hagemann et al.
 Catalyzer and making catalytic material.....
C. Ellis
 Catalyzers and apparatus therefor, Process
 of preparing.....C. Ellis
 Catch plates to strips, Machine for attach-
 ing.....J. E. Mayo
 Cement-block construction.....D. McIntyre
 Chain links, Making.....F. G. Breul
 Chart, drawing board and writing desk,
 Combined educational.....G. A. Henderson
 Chicken catcher.....P. P. Andrews
 Chimney thimble.....J. T. Skillen
 Chocolate or the like containing preserved
 fruits, almonds, &c., Apparatus for mold-
 ing.....E. L. A. Savy
 Chuck.....J. Hartness
 Clute, Garbage.....E. Bradshaw
 Cigar cutter.....J. H. Bowen
 Cigarette-molding device.....C. F. Stewart
 Circuit-closing device.....W. W. Alexander
 Circuit controller.....H. A. Steen
 Cleaning apparatus, Article.....E. L. Couch
 Closet stool, Automatic fly-proof.....E. J. Haley
 Closets, Floor connection for.....H. J. McNamara
 Clock-actuating device.....B. M. W. Hanson
 Clock, alarm, &c., Combination gauge.....
W. I. Staaf
 Code messages, Machine for forming.....
E. H. Hebron
 Coin-controlled mechanism.....R. Watson
 Coin-controlled mechanism.....P. W. Schroeder
 Coin-packaging holder.....C. S. Batdorf
 Collar attachment.....E. Belmont et al.
 Collar protector.....H. J. Roth
 Collar-stuffing machine.....H. E. Doane
 Combustion compressor.....J. Raclot et al.
 Combustion motor.....M. R. Matti
 Composing and casting machine, Line.....
B. Cade
 Concrete pipe, Machine for making.....
H. E. Marsh
 Constant-output generator.....E. Rosenberg
 Controlling mechanism.....E. J. F. Rea et al.

Conveying apparatus.....J. A. Pitt
 Cooking apparatus.....R. J. Workman
 Cooking utensil.....C. M. Daly
 Coop, Poultry.....T. P. Mohr
 Copper, Electrolytic production of.....
N. V. Hybinette
 Copying or duplicating machines, Tracing
 device for.....E. R. Lochman
 Cork extractor.....J. Gebhart
 Corn hanged, Seed.....J. Darnieder
 Crate, Shipping.....N. M. Speedy
 Cross tie.....L. A. Stoner
 Crushing mill.....T. L. and T. J. Sturtevant
 Cultivator.....S. E. Bailor
 Cultivator.....T. J. Fite et al.
 Cultivator (2 pats.).....H. Petersen
 Cultivator.....C. W. Michael
 Cultivator cotton chopper attachment.....
R. Williams
 Curtain or shade fixture, Window.....
P. G. Emery
 Curtain pole.....P. Starek et al.
 Cushioning device.....E. Schuch
 Cutting and pasting table.....J. B. Smith
 Dam.....E. W. Liljegan
 Davit, Ship's.....A. D. Burbridge
 Decorative material.....O. T. Waite
 Decorticating blade.....H. L. Heath
 Dental impression tray.....J. Lautenberg
 Dermatological instrument.....G. E. Hackett
 Derrick, Collapsible.....M. P. Shoup
 Display apparatus.....J. E. Wood
 Display card.....P. M. Wolsieffer
 Display rack for ax-handles and the like.....
J. Wall
 Display racks, Cutting mechanism for.....
D. L. Lanford
 Distilling apparatus, Petroleum.....C. R. Ewing
 Distilling petroleum.....W. C. Koehler et al.
 Door controlling means (2 pats.).....
H. G. Voight
 Door controlling means, Sliding.....H. G. Voight
 Door hanger (2 pats.).....H. Tatje
 Door, Hinge.....C. J. Lawless
 Door, Metallic.....E. G. Budd
 Door spring.....S. Rolfson-Schmidt
 Door with closing device and packings, Re-
 volving.....W. S. Ely
 Doors, Controlling and locking means for
 sectional sliding.....H. G. Voight
 Drill.....J. S. Foley
 Driving Mechanism.....J. Ratzlaff et al.
 Drying machine.....O. M. Miller
 Dust-pan.....J. Beecher
 Dyes and making same, Yellow monoazo.....
R. Reyher
 Educational apparatus.....W. L. Smith
 Electric furnace.....G. Mettler
 Electric lighting of cars and for other pur-
 poses, Apparatus for the.....M. Metz
 Electric machine, Dynamo.....V. A. Fynn
 Electric machines, Brush holder for dyna-
 mo.....T. S. Allen
 Electric machinery, Dynamo.....
A. L. J. Scherbius
 Electric meter.....G. M. Willis
 Electric motor.....H. L. Zabriskie
 Electric service wires, Support for.....
G. Hopkins
 Electric spark-producing apparatus.....
G. W. Wacker
 Electric trap.....J. Entwistle
 Electrical distribution system.....V. A. Fynn
 Electrical machines, Winding for.....
E. Rosenberg
 Electrodes and other carbon articles, Soft-
 ening the ends of.....J. W. Brown
 Electromagnetic switch.....E. R. Carichoff
 Elevator automatic stop.....W. Thorson
 Elevator shafts, Safety gate fastener for.....
D. G. Alsop
 Engine ignition-indicating device, Internal-
 combustion.....A. De Clairmont
 Engine muffler, Gas.....L. F. Pelletier
 Engine starter (Reissue).....T. J. Gray
 Engine-starting device, Explosive.....F. C. Doody
 Engine-starting spark-producing apparatus.....
G. W. Wacker
 Engines, Ignition system for internal-com-
 bustion.....J. Marx
 Engraver's instrument.....L. Fox
 Ensilage cutter.....C. Bozile
 Escapement mechanism.....J. E. Molle
 Esters and ethers of ethylidene glycol and
 of vinyl alcohol, Manufacture of.....F. Klatte
 Eye-testing device.....J. Ouimette
 Eyeglasses, Rimless.....R. J. Fleming et al.
 Fabric-heating apparatus, Coated.....
W. B. Wescott
 Fan, Ventilating.....J. M. Dayiantis
 Fastener.....A. Holzberg
 Fastener.....E. A. Benson
 Fastener top, Snap.....A. H. Greenebaum
 Fastening device.....E. Erickson
 Feed governor.....O. S. Curtner
 Feed trough.....A. Wood
 Feeder for poultry, Green-food.....W. D. Moody
 Fence machine, Wire.....J. S. Barnes
 Fender.....R. E. Morrow
 Fibrous material, Article of.....P. R. French
 File, Prescription.....W. F. Beaird
 Filing device or album.....B. Krumming
 Filing systems, Leaf for.....G. C. Parsons
 Filter.....H. Alinder
 Fire alarm and extinguisher.....J. Hartley
 Fire and burglar alarm, Automatic.....
L. A. Meyers
 Fire-door and operating mechanism there-
 for.....L. A. Hardin
 Fire escape.....A. Moser
 Firearm sight.....R. L. Warner et al.
 Fireproof electrically-conducting bodies and
 manufacturing the same.....G. Egly
 Flasks, Means for filling moving.....
E. F. Thiemann
 Flax and other like fibers, Hackling ma-
 chine for.....R. V. Eves
 Flower box.....M. Eger
 Flue cutter.....G. R. Maupin
 Fluid-pressure drill.....J. A. Heany
 Flume.....A. M. Burch
 Flusher, Closet.....C. A. Wulf
 Flushing apparatus.....J. J. Gleeson
 Fly-killing device.....A. W. Hamaker
 Fly paper, Composition of matter for mak-
 ing.....G. Knoepfler

- Fly-paper holder P. J. Peck
Fly trap J. E. Loudon
Flying machine H. O. Lawrence
Flying machines, Automatic balancing device for A. G. Matteson
Flying machines, Automatic balancing device for A. G. Matteson
Flying machines, Lifting surface for C. H. Burleigh
Folding machine H. B. Cooley
Folding machine J. G. Binder, Jr., et al.
Foree, Apparatus for utilizing an expansive H. A. Humphrey
Foree by means of magnetized rings, Device for transmitting A. Huguenin
Foree, Utilizing an expansive H. A. Humphrey
Forging, Car part W. D. Forsyth
Forging, Heating bars or billets preparatory to H. V. Loss
Form, Adjustable garment M. Selubsky
Friction-top can L. C. Krummel
Fruit depressor, Sanitary E. M. Scheier
Fuel, Kindling M. A. Smith
Funnel, Battery filling C. O. Keagy et al.
Furnace J. W. Thomas
Furnace C. Ehlinger
Furnace and cooking stove, Combined J. T. Cooper
Garbage receiver and sink strainer, Combined A. G. Collins
Garment H. Folkman
Garment A. Roth
Garment receptacle and hanger I. H. Lyons et al.
Garment suspenders H. J. Gaisman
Garment, Union L. W. Farquhar
Gas and the like, Making containers for E. E. Slick et al.
Gas container E. E. Slick et al.
Gas generator, Acetylene R. N. Karnes
Gas-lighting, Incandescent R. Langhaus
Gaseous mixtures, Separation of the constituents of G. Claude
Gasoline meter W. H. Ford
Gearing E. A. Halbleib
Class cleaner A. Wenieke
Grinding machine for flat-surface grinding, Emery A. Schoeller
Go-cart, Collapsible C. B. Mercer
Grain-shocking machine C. A. Ulmer
Grooving machine J. J. Marstall
Grubbing implement J. H. Connell
Gun carriage E. C. Schneider
Hammer drill C. C. Hansen
Hammer press E. H. Wray et al.
Hand bag M. Nover
Hand bag J. Thense
Harness, Casting R. Russell
Harrow B. Serlachius
Harvester, Beet L. W. Eversman et al.
Harvester, Cotton G. Lisleupard
Harvesters, Picking mechanism for cotton L. L. Upshaw
Hat fastener F. S. Laroche
Hat-holding device E. Dickinson
Hat-pin attachment W. Barnett
Hat-pin-point protector E. J. Magee
Hats on the head, Device for securing ladies' E. Tuelher
Hay press R. W. Parriott
Headlight dimmer G. G. Rosino et al.
Headlight, Dirigible F. M. Nolder
Heat-resisting properties of bituminous or tarry materials, Increasing the K. L. V. Zimmer
Heater and cooker F. V. Detwiler
Heating apparatus, Hot-water J. F. Cunningham
Heel-breasting machine E. Erickson
Heel for footwear R. S. Graham
Hemoglobinometer E. Kobner et al.
Hide stretcher C. Garver
Hinge G. Polverino
Honey-uncapping machine L. R. Ferguson
Horse overshoe R. Whitaker
Hot-air engine J. R. Sandage
Incubator I. R. Jones
Index system F. C. Thomas
Induction generator F. E. Norton et al.
Inhaler G. von Ach
Inhaling device B. C. Vaughn
Insect trap J. Fabian
Interest-computing machine J. A. Cashel
Internal-combustion engine W. Woodward
Internal-combustion engine comprising rotating cylinders E. Becker et al.
Ironing-board attachment G. F. Ramm
Kitchenette, Portable C. L. Hunter
Knitting machine J. A. Mills
Knitting machine, Circular W. H. and R. Blackburn
Knock-shank fastener T. E. Crouch
Lacing machine, Belt A. Rahrer
Ladder J. J. Robel
Lamp W. O. Batts
Lamp, Illuminating N. J. Verret
Lamp, Inclosed-electric-arc M. Korting
Lamp, Portable electric G. B. Swinehart
Lamp support R. E. Ewing
Lamp support H. C. Reagan
Lamps, Valve stem for acetylene A. L. Hansen
Lantern, Traffic S. F. Du Ree
Lantern wheels, Means for assembling C. S. Sandoz
Lasting machine M. Brock
Lathe, Automatic C. M. Chapman
Lead-nitrate solutions, Producing S. W. Anderson et al.
Lead solutions from lead ore, Production of S. Anderson et al.
Ledger, Loose-leaf S. B. Kirtley
Lenses, Apparatus for the manufacture of bifocal M. Bentzon et al.
Level J. S. Duffy
Line clamp or holder, Automatic H. Peters
Liquid-fuel burner E. B. Valot
Liquid under pressure, Apparatus for delivering W. H. Bees
Liquids, Feed device for J. Williams, Jr.
Liquids or pulps, Apparatus for agitating and aerating A. C. Howard
Lister attachment V. Lauer
Lock J. Womack
Lock A. Grandits
Lock J. C. Sullivan
Locking and tilting device F. R. Jones et al.
Locomotive H. W. Bell
Locomotive boiler J. M. McClellon
Locomotive, Electric (2 pats.) W. Walton
Locomotive side frame C. E. Lilly
Locomotives, Device for coaling and watering V. Rainer
Log-transferring device F. P. Sykes
Looms, Feeler mechanism for weft-replenishing E. H. Ballou
Lug-strap holder P. D. Padgett
Lumber, Treating R. L. Gilliam
Magnetic break-switch G. E. Palmer
Mail-bag catcher and deliverer H. Jenkins
Manometer, Indicating, integrating and recording F. N. Connet
Manuscript cover M. H. Gehlar
Massage vibrator G. S. Tune
Match case H. G. Lundquist
Measure, Foot J. L. Lundahl
Measure-indicating device for bolts of cloth or similar fabrics J. Dugan
Measuring instrument A. Haymowicz
Mercuric chloride and producing same F. Kauffer et al.
Metal bars, Joint for crossing H. Heinzl
Metal-cutting knife F. H. Williams
Metal-cutting machines, Work holder for H. Matthews et al.
Metals from their ores, Apparatus for extracting H. S. MacKay
Metals, Making clad W. M. Page
Micrometer feed for tools B. D. Jackson
Microphone L. Erickson
Milk can, Vacuum-jacketed S. Le Sieur
Milo header R. L. David
Mold carriage H. H. De Loss
Molders' sand-cutting machine R. G. Kissel
Molding apparatus T. Ragan et al.
Molding box J. Blum
Molding machine E. F. Thiemann
Motor-control system, Electric J. S. Peck
Motor craft, Apparatus and method relating to high-speed P. C. Hewitt
Motor-starting mechanism, Explosive C. Gaynor
Mouthpiece attachment A. C. Gaynor
Mowers, Auxiliary handle for lawn J. E. Page
Mowing machine F. M. Cranlund
Multiple-power engine W. S. Weikel
Nest, Hen's M. Alexander
Nozzle for oil distributors H. K. Porter
Nozzle, Fountain spray J. Loosen
Nut lock H. Chesser
Nut lock J. E. Strietelmeier
Oil burner for stoves F. E. Schaal
Oil-burning furnace J. J. Haskin
Oil engine W. A. Clark
Oil-refining mechanism G. H. Gillons
Oils and the like with gases, &c., Apparatus for treating C. Ellis
Oiler, Axle A. H. Henke
Ore-concentration apparatus W. Broadbridge et al.
Ores or the like, Method and apparatus for separating O. A. Zander
Oven C. Andre
Oven, Baker's F. C. Ihlee
Packing, Sectional ring for rod. C. W. G. King
Paint, Fire-resisting F. W. Brooks
Paints, enamels, &c., Making A. S. Ramage
Panel board R. H. Olley
Paper, Composition for removing wall. C. Ellis
Paper-cutting machine N. Gray, Jr.
Phonograph starting and stopping device F. E. Hare
Photographic apparatus W. R. Schwab
Photographic films or plates, Apparatus for marking O. Chouinard
Photographic-printing apparatus E. A. Staffin
Piano, Knockdown J. M. Hopphan
Piano player R. W. Scott
Piano players, Note-sheet guide for W. T. Waite
Picture machines, Winding mechanism for motion P. U. Mascher
Piles and caissons, Means for forming underground footings for E. Bignell
Piling, Metal sheet J. R. Wemlinger
Pin holder G. Giugliano
Pipe-threading and cutting apparatus W. W. Vosper
Piston or plunger, Cup-ring-packed A. R. Trist
Plant setter, Check-row S. S. Dillow
Planter H. J. Brown
Planter attachment R. J. Altgelt
Planter, Check-row L. J. Helgeson
Planter, Corn J. Sertie
Plow, Engine gang W. S. Graham
Pocket holder I. D. Plett
Potato masher L. L. Olson
Poultry marker C. O. Deist
Press-starting and stopping mechanism J. V. Collier et al.
Printer's plate hook W. L. Hamilton
Printing frame W. G. Clements
Printing plate or form and a cross-reference index card, Simultaneously making a master W. E. Choate
Printing-press delivery mechanism H. Lewis et al.
Printing presses, Form-roller mechanism for E. J. F. Rea
Propeller, Water T. and L. E. Salveson
Pruning implement W. H. Soupene
Pulley, Lifting W. H. Pond
Pulp, Preparing C. Bache-Wug
Pulverizing machine F. R. Wilson, Jr.
Pump C. R. Edwards
Pumps, Piston-operating mechanism for oil C. Pottel
Pumping apparatus, Air J. J. Everson
Punching machine L. H. Calaway
Pyrophorous lighter A. Harris
Pyrophorous lighter L. V. Aronson
Radiators, Manufacture of H. Reis et al.
Rail anticreeper F. A. Preston
Rail anticreeper P. W. Moore
Rail brace R. M. Evans
Rail fastener I. Romo et al.
Rail joint R. W. Davis
Rail joint J. H. Robbins
Railway-control system, Automatic C. S. Stanton
Railway spike H. A. Sommermeyer
Railway switch S. James
Railway tie H. L. Hollis
Rat trap E. L. Segerlund
Razor handle L. Stouffer
Receptacle cover, Self-locking G. Kingstedt
Receptacle top W. G. Kendall
Records, Container for disk T. D. Foster
Refrigerating apparatus E. N. Friedmann
Refrigerator E. W. Shirk
Rein holder E. F. Chambers
Release rigging W. P. Murphy
Resilient wheel T. Yochum
Reversing switch T. B. Elliott
Rim with movable bottom M. Wolff
Rock drills, Dust remover for V. P. Kessel
Rock drills, Rotating means for D. S. Waugh
Roll-ramming apparatus H. P. Macdonald
Rolls, Making chilled E. L. Patch
Rolling-mill appliance A. Pisarcik
Rotary kiln A. Schaffer
Rubbing board A. P. Miller
Rung-engaging clip J. Roberts
Sack M. Quisenberry et al.
Saddle, Spring C. A. Persons
Sand sifter J. C. Everson
Scraper and grader, Road A. Carver
Screen fastener W. F. Roscoe
Seal, Car H. R. Romberger
Seal for containing cases C. E. Beach
Sealing device, Cigarette-rod E. D. Smith
Sealing paper boxes, Machine for C. P. Ricker
Seasoning instrument C. F. Pauls
Sectional case F. H. Rahm
Seed extractor, Fruit E. Bunzl
Sewing machine G. E. Molyneux
Sewing machine, Button C. A. Anderson
Shade bracket P. J. Miller
Shade-roller fixture J. Farro
Shade, Window W. W. Wiggs
Shaper B. M. W. Hanson et al.
Sharpener, Disk J. D. Stewart
Shock absorber J. R. McConnell
Shoe expander C. D. Compton
Shoes, Making J. Cavanagh
Shovel and hoe, Combined R. R. Clark
Shovel, spade, and scoop J. S. Surbaugh
Signal S. L. Young
Signaling system C. E. Beach
Silo-door frame D. W. Osborn
Silos, grain bins, and storage tanks, Joint for J. R. Boardman
Skins on reels, Device for binding G. A. Berthold
Skirt marker K. J. Jaeger
Skiing machine A. M. Alexander
Slide C. A. Buettner
Slip-joint machine J. P. Harner
Slot machine J. H. Egan et al.
Snow plow W. L. Stadig
Sodium bisulphite, Making solid H. Howard
Sound record and production thereof V. H. Emerson
Sound-record material V. H. Emerson
Spark plug F. M. Furber
Spectacles, Adjustable and detachable bow for E. Blanchard
Speed indicator H. H. Welch
Spike, Self-locking G. I. De Force et al.
Spillway siphon W. R. Davis et al.
Spring-lubricating device G. F. Voight
Spring motor for fans and the like F. Johnston et al.
Spring switch E. N. Prouty et al.
Spring wheel A. Gage
Spring wheel A. S. Kinney
Spring wheel C. F. Willner
Stair for sleeping-car berths, Foldable E. C. Paterson
Stanchion retainer A. Tuscan et al.
Starting and stopping mechanism A. A. Ball, Jr.
Stationery E. C. Myers
Steam engine, Terminal exhaust J. Davidson
Steel, Treating A. J. Rossi
Steering mechanism, Automatic M. G. Brandao
Stencil and a cross-reference card, Simultaneous production of W. E. Choate
Stencil unit W. E. Choate
Stitch-forming mechanism, Multiple-needle overedge J. O. Weis et al.
Stove, Portable knockdown C. Wamble
Street-sweeping machine J. M. Himes
Studs to strips, Machine for attaching J. E. Mayo
Sugar holder and dispenser, Sanitary A. G. Bettman
Sugar solutions, Electrolytic apparatus for the clarification of H. McCubbin
Suit box R. P. Brown
Supporting device F. N. Thayer
Suspenders F. W. Malley et al.
Suspension rack, Revolving W. H. Martin
Swaging machine, Tube-feeding device for F. L. Sessions
Switch controller, Automatic pressure C. S. Jennings
Syringe C. F. Dewitt
Table G. Steingruber
Talking machine (3 pats.) M. B. Claussen
Talking machine sound box W. N. Dennison
Talking-machine starter H. B. Fitz Gerald
Talking machines, Clarifying attachment for W. J. Burchett
Tanuer's toggle J. D. Coughlin
Taximeter W. Levin
Taximeter P. Richert
Telephone attachment W. J. Stuart
Telephone attachment E. Gransaul
Telephone device for calling cabs, porters, and the like A. Hinzpeter
Telephone system F. M. Wolf et al.
Telephone system, Loud-speaking J. J. Comer
Telephone timekeeper C. L. Braucher et al.
Tent ropes or the like, Means for adjusting P. B. Tod
Threshing machine R. W. Crippen
Ticket-delivery machine E. McComas
Tilling machine J. Peterson
Time-indicating device W. Bryce
Timer C. W. Groneman
Tire J. McNamee
Tire, Pneumatic puncture-proof F. Newbauer
Tire protector F. Holik
Tire, Spring H. J. Augustine
Tires, Constructing B. H. Divine
Toe-binding apparatus J. Cavanagh
Toggle bolt G. H. Merrill
Toggle bolt H. B. Newhall
Tongue switch V. Angerer et al.
Tool, Combination A. A. Towne
Tool machine, Multiple A. D. Ray
Tooth-paste container W. J. Clark
Toy F. W. Atwell
Traction engine L. S. Claibor et al.
Train-stopping means W. T. B. McDonald
Transformers, Cooling system for K. C. Randall
Tree support H. Thoeni
Trolley-pole retriever T. B. Shanahan
Trolley wheel J. P. Burns
Truck, Hand J. C. Moore
Truck, Railway car W. F. Richards
Truck side frame, Car G. T. Johnson
Tug fastener J. S. Atkinson
Turbine E. Anderson
Turbine T. V. Elliott
Turbine, Steam C. B. Bearick
Type-writer desk or stand E. Baltzley
Type-writing and other machines, Key for R. S. Graham
Type-writing machine N. H. Anderson
Typewriting machine E. B. Hess et al.
Type-writing machines, Carriage-shifting mechanism for W. P. Kidder et al.
Typographical machine C. Muehleisen
Unbuttoning implement C. E. Collins
Undergarment E. P. Brinker
Undergarment A. G. Velasco
Valve P. W. Seager
Valve E. E. Comstock
Valve S. A. Whitehouse
Valve for air-brakes, Triple W. B. Mann
Valve for radiators, Air G. D. Hoffman
Valve for radiators and similar devices, Return G. M. Collier
Valve, Gas engine R. E. Drennon
Valve, Gate T. White
Valve mechanism for internal-combustion engines J. W. Whitlock
Valve, Registering M. and F. Klitzsch
Valve-reversing gear, Steam engine J. L. Mohun
Valve, Safety gas L. F. Hager
Valve, Slide J. Miller
Valve structure S. A. Whitehouse
Vault light A. De Mateo, Jr.
Vehicle, Motor C. B. Lord
Vehicle pneumatic suspension device (2 pats.) J. Williamson
Vehicle spring C. L. Jordan
Vehicle spring (Reissue) L. A. Huston
Vehicle steering device T. S. Harris
Vehicle-steering-gear connection, Motor U. A. Towle
Vehicle wheel A. R. Wylie et al.
Vehicle wheel A. Saunier
Vehicle wheel D. T. Timberlake
Vehicle wheel, Spring D. T. Timberlake
Vehicles, Transmission mechanism for motor G. Guerra
Vending and change-making machine, Automatic E. E. Henry
Vending machine H. T. Werden et al.
Vener box, Collapsible O. C. Fenlason
Ventilator ring, Ball-bearing rotary C. E. Meighan
Vise J. Schmutz
Voltage-regulating means H. Nehlsen
Voting machine J. H. Dean
Voting machine S. R. Shoup
Voting machine interlocking mechanism W. J. Lausterer
Wagon H. Pezzetti
Wall and lath construction for buildings J. B. Johnson
Wall construction of concrete blocks, System of hollow B. J. D. Blackmore
Wall, Reinforced block (Reissue) J. S. Banks
Warp-thread-marking apparatus C. D. Honiker
Washington machine G. H. Hess
Watch movement E. A. Lundvall
Watchcase bow and pendant C. W. Butts
Water heater E. Roth
Water motor A. C. Wuensch
Water motor G. Fischer
Water-power mechanism J. S. Beaver
Water purifier J. D. Ramsey
Water trough R. E. Morris
Wax and honey of honeycomb, Apparatus for separating (Reissue) F. R. Beuhne
Weighing apparatus, Automatic C. C. Voglesong
Weight, Garment M. E. Roarke
Welding, Electric seam E. Thomson
Welding machine J. H. Gravell
Wheel rim, Vehicle H. K. Wheelock
Whip socket and line holder E. V. Hoffarth
Winding machine C. B. Snell
Winding machines, Bunch-building attachment for W. Marcroft
Windlass for vessels, Combination J. A. Watt
Wire-drawing appliance J. H. Reece
Wire strainer for fence posts and other like purposes C. W. W. Broun
Wire-testing instrument, Open C. L. Faries
Wire ties, Tool for twisting and cutting T. A. O'Rourke
Wood panel, Reinforced A. Jaminet
Wrapping machine H. De Escobales et al.
Wrench A. P. Johnson
Wrench E. H. Robbius
Wrist-pin-truing device A. A. Rothrock
Canadian patents may now be obtained by the inventors for any of the mechanical inventions named in the foregoing list, provided they are simple, at a cost of \$35 each. If complicated the cost will be a little more. For full instructions address Inventive Age Publishing Co., 918 F Street N. W. Washington, D. C.
Foreign patents may also be obtained in certain other countries.

The Most Valuable Techno-Chemical Receipt Book Published

Henley's Twentieth Century Book of RECIPES FORMULAS AND PROCESSES



Edited by GARDNER D. HISCOX, M. E.

Price, \$3.00 Cloth Binding \$4.00 Half Morocco Binding

800 large Octavo (6 x 9½) Pages.

Contains over 10,000 Selected Scientific, Chemical, Technological,
and Practical Recipes and Processes, Including Hundreds of
so-called Trade Secrets for every business.

To present here even a limited number of the subjects which find a place in this valuable work would be difficult. Suffice to say that in its pages will be found matter of intense interest and immeasurable practical value to the scientific amateur and to him who wishes to obtain a knowledge of the many processes used in the arts, trades and manufactures, a knowledge which will render his pursuits more instructive and remunerative. Serving as a reference book to the small and large manufacturer and supplying intelligent seekers with the information necessary to conduct a process, the work will be found of inestimable worth to the Metallurgist, the Photographer, the Perfumer, the Painter, the Manufacturer of Glues, Pastes, Cements, and Mucilages, the Compounder of Alloys, the Cook, the Physician, the Druggist, the Electrician, the Brewer, the Engineer, the Foundryman, the Machinist, the Potter, the Tanner, the Confectioner, the Chiropodist, the Manicure, the Manufacturer of Chemical Novelties and Toilet Preparations, the Dyer, the Electroplater, the Enameler, the Engraver, the Provisioner, the Glass Worker, the Goldbeater, the Watchmaker and Jeweler, the Hat Maker, the Ink Manufacturer, the Optician, the Farmer, the Dairyman, the Paper Maker, the Wood and Metal Worker, the Chandler and Soap Maker, the Veterinary Surgeon, and the Technologist in general.

Among the Recipes given are:

Bleaching, Etching and Engraving
Recipes for Glass Making, Paper Making
Recipes for Ointments
Mirror-Making Formulas
Paint Making Formulas
Gilding and Galvanizing Recipes
Bronzing, Tinning and Silvering Recipes
Recipes for Adhesives
Plating and Enameling Recipes
Cleaning Processes, Soap Making
Leather and its Preparation
Recipes for Alloys, Recipes for Solders
Photographic Formulas
Shoe Dressing and Stove Blacking Recipes
Rust Preventive Recipes

Recipes for Lubricants and Oils
Recipes for Dyes, Colors, and Pigments
Recipes for Dryers and Inks
Recipes for Artificial Gem Making
Jewelers' and Watchmakers' Recipes
Household Formulas
Waterproofing, and Fireproofing Recipes
Recipes for Cements, Glues, Mucilages
Recipes for Fireworks
Alcohol and its uses
Recipes for Essences and Extracts
Dentifrice, Cosmetic, and Perfume Recipes
Tanning Recipes
Metallurgical Formulas
Hair Restorers, and Depilatories

And many thousands more—Equally important in the Arts and Manufactures

Address: THE INVENTIVE AGE Publishing Co., Washington, D. C.

A GREAT BARGAIN \$1.75 Value for \$1.00

One Year's Subscription for McCall's
Magazine, Any 15-Cent McCall
Pattern you may select, One
Year's Subscription for
The Inventive Age.

ALL FOR ONLY



\$1.00



McCall's Magazine

Is a large, artistic, handsomely illustrated hundred-page monthly magazine. It contains sixty new Fashion Designs in each issue. Every woman needs it for its up-to-date fashions, entertaining stories and complete information on all home and personal topics. Over one million subscribers. Acknowledged the best Home and Fashion Magazine. Regular price, 5 cents a copy. Worth double.

McCall Patterns

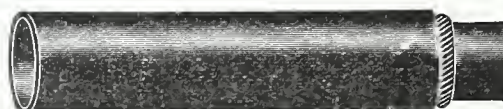
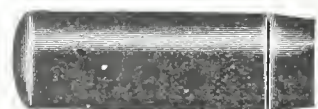
Are so simple you cannot misunderstand them. Absolutely accurate. In style, irreproachable. You may select, free, any McCall Pattern you desire from the first number of the magazine which reaches you. Regular price, 15 cents.

The Inventive Age.

A journal of manufacturing industry and scientific progress. The indispensable paper for patentees. Contains matter and information not found elsewhere. Regular price, \$1.00 per year.

The DIAMOND SELF-FILLING AND SELF-CLEANING Fountain Pen.

IT IS AWAY AHEAD
OF ANY OTHER PEN
MANUFACTURED BE-
CAUSE OF ITS SELF-
FILLING AND SELF-
CLEANING FEATURES



No Soiled Fingers.

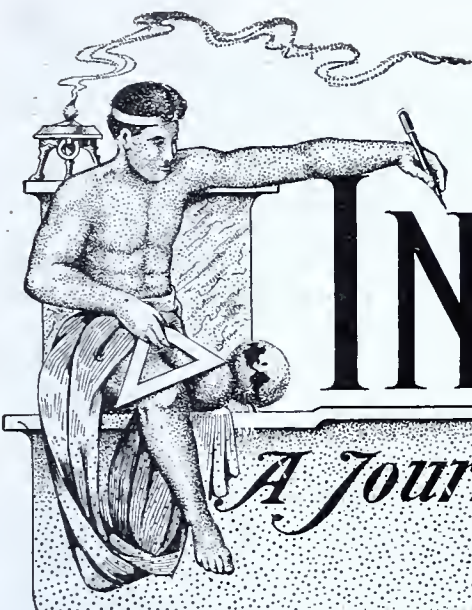
No Lost Time.

Price \$2.00.

Including one year's
subscription to "The
Inventive Age."

Address: INVENTIVE AGE PUB'L. COMPANY, WASHINGTON, D. C.

SEND FOR OUR FREE CATALOGUE OF BOOKS FOR
INVENTORS AND MECHANICS.



The INVENTIVE AGE

A Journal of Manufacturing Industry and Scientific Progress.



VOL. XXVI. No. 5. }

WASHINGTON, D. C.--MAY, 1914.

{ SINGLE COPIES 10 CENTS.
ONE DOLLAR A YEAR.

THE NATURAL COLOR KINEMATOGRAPH.

By FRANK C. PERKINS.

THE accompanying illustrations show the design and construction of the latest kinemacolor electric projector. The color filters are less dense than heretofore, which accounts to a very considerable extent for the low current consumption now required for kinemacolor projection.

It is stated that the masking device has been altered so that two complete pictures can be racked through the gate, thus permitting correction to be made in the event of the operator failing to thread the correct color picture in the gate.

It will be noted that the machine is of most substantial construction and is made for hard wear and steady projection, and is as suitable for black and white as for color working. A new oxy-acetylene projection outfit has been devised in which no condenser is required, a concentrated light being obtained by means of a Mangin lens mirror. In this instrument the source of light consists of pastil upon which plays a flame of oxygen and dissolved the acetylene, in the proportion of 4 of former to 3 of the latter. It is claimed that the gas consumption and cost of running are considerably lower than with ordinary lime light. The system is a unique one, and of great interest.

It may be of interest to consider somewhat in detail kinemacolor electric projector and its method of operation. It is said to be the latest and most perfect phase of cinematography, and the only process in existence showing motion pictures in the actual tones, tints and hues of Nature.

This apparatus should not be confused with the so-called color kinematograph films, inasmuch as those pictures are machine colored by the stencil method, which presents flat, crude and inartistic results. It is claimed that kinemacolor effects are naturally produced, with accurate and faithful presentations of all the gorgeous colors for which the photographer has vainly striven since the

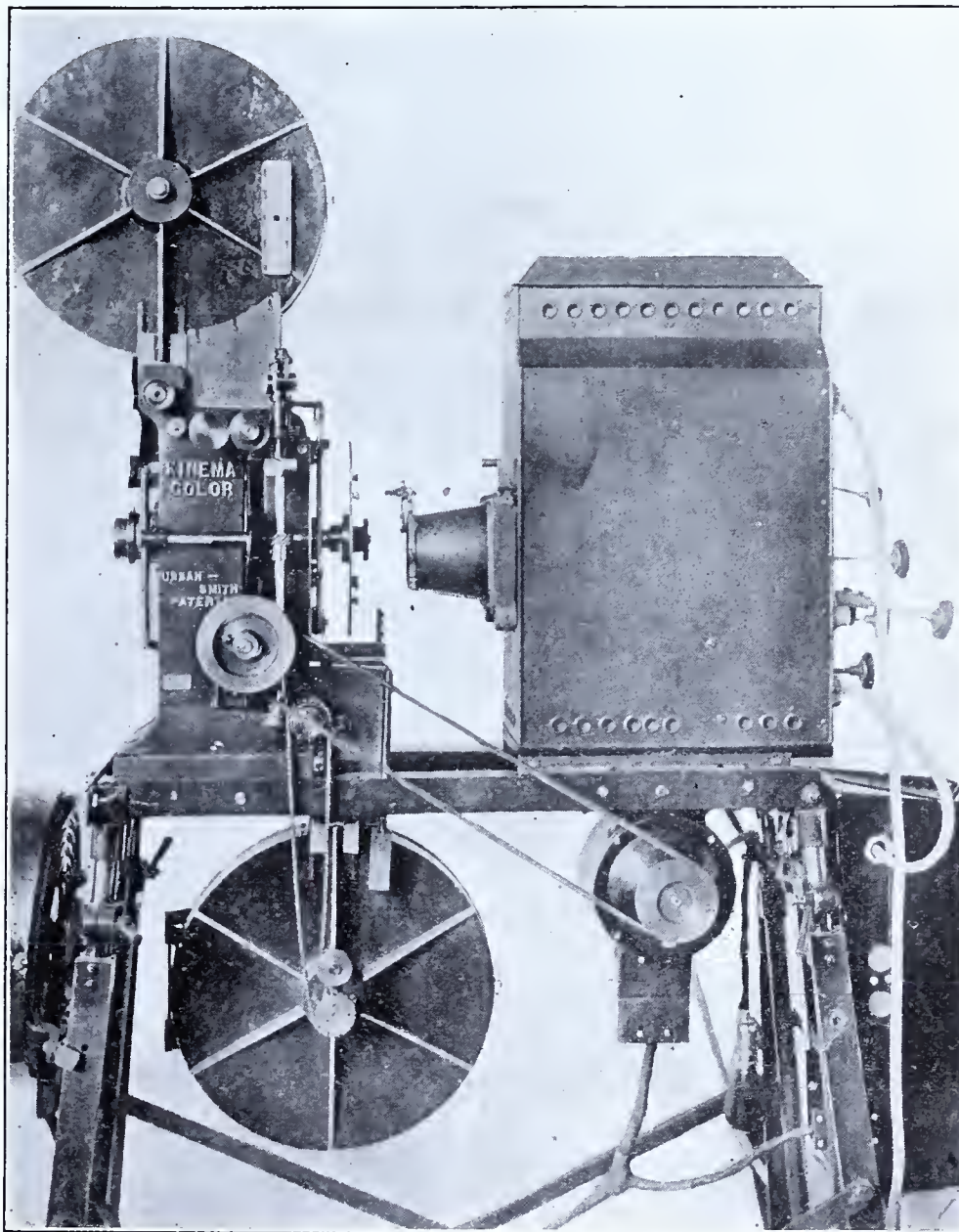


FIG. 1.—KINEMACOLOR APPARATUS.

day when a visible image was first projected by a lens.

The kinemacolor reproduces all the colors of the spectrum with their delicate shades, soft tones and rich tints. These colors are harmoniously blended by nature itself, not artificially painted upon the ordinary black and white film by mechanical processes de-

void of stereoscopic charm and reality. It is claimed that such artificially produced pictures are palpably unreal and inartistic, while the kinemacolor is a scientific fact, and the perfected results have gained the commendation of the Royal Society of Arts, the London Zoological Society, and the cognate institutions in the

principal cities of Europe and America. The most critical art and photographic color experts of the world have been won over on sight and have declared in its favor.

In order to realize the advance made by kinemacolor in the art of the camera, it must be clearly emphasized that the colors obtained are due to the agency of light only. No painting, handwork, stencil-work or similar devices are used. The colors are, as it were, latent in the photographic picture and are brought into visibility at the moment of exhibition. The colors of nature are photographically recorded simultaneously with the taking of the picture, the completed picture in all its richness of tint can be exhibited within a few hours, and duplicates can be issued with the celerity associated with black and white subjects.

It is stated that in working out the process, one of the most difficult problems was that of making photographic film sufficiently sensitive to red light. As everyone is aware, the photographic film known to commerce is not sensitive to red rays, and only very slightly to yellow and green ones. For that reason a red light is used in dark rooms, by which the development of negatives is watched. The making of a color-sensitive film necessitated exhaustive experiments covering a period of nearly three years. A product was finally obtained which in sunlight is sensitive to color waves, from the brightest of violet to the darkest of red.

In further working out the instrument, the inventors kept steadily in view one most important point, namely, that any process to be really valuable must be readily adaptable to existing conditions. As a consequence of this determination, kinemacolor can be exhibited in conjunction with black and white pictures in any motion picture theater in the world. The same machine with a trifling addition,

answers both purposes, first one kind of picture and then another (black and white or color) can be exhibited as the nature of the programme demands.

When the kinemacolor camera is at work a pair of carefully selected light-filters sift the color waves of the scene and permit them to be recorded separately and in due proportion. When the film bearing these color records is subsequently run through a motion picture machine fitted with somewhat similar filters, the color waves are again set in motion, and as the proportions of colored light then offered the observers are the same as at the outset, the original scene is reconstructed, as it were, to the eye.

For the practical working of kinemacolor devices, no scientific knowledge whatever is necessary. Any photographer who understands his business can readily take motion pictures in natural colors, and any man who knows enough about projecting machines to obtain his license from city authorities can be taught in ten minutes how to exhibit kinemacolor pictures.

It is said that the eye, accustomed to the glare and flicker of black and white subjects, experiences a sense of relief whenever kinemacolor pictures are interspersed. This would naturally arise from the fact that the kinemacolor film runs at twice the ordinary speed, which reduces the flicker, and also because the introduction of natural color is in itself restful to the eye.

Regarding this matter W. W. Harmon stated to the Massachusetts Optical Society that the time was not far off when the moving picture shows will be obliged to use some method of giving color to their pictures. He says:

"As it is now, the crude light vibrations are certainly productive of nervous headaches, with partial paralysis of the optic nerve of every individual having the habit of attending this form of entertainment."

The secret of these nervous disorders lies in the fact that the rays of light producing the moving pictures are lacking in color. It is on the same principle as traveling over a field of snow in the bright sunlight.

Normal conditions consist of a continuous chromatic flow of color, and being continuous throughout life, this becomes an actual necessity to our well being. Consequently, any sudden transition from this kaleidoscopic effect into a condition where there is an entire absence of color, invariably results in an abnormal action and reaction of the whole nervous system and an effort to adjust itself to those conditions.

The projection mechanism is quite simple. There is an ordinary light cut-off shutter arranged to work between the lens and the film. The lens is mounted on the front part of the gate and forms a metal box, which is entirely closed, save for the slot through which the shutter passes. There is a masking rack and pinion with a milled head to the left of the lens.

The black and white shutter is a semi-circular metal plate, termed the

splash plate, its duty being to protect the color shutter, which is immediately behind it, from any oil that may be thrown off from the high speed running gear. The fly or driving wheel has three belt races of varying diameter, and adjoining the fly wheel is its supporting bracket which is constructed from a phosphor-bronze casting of extra heavy design.

the vertical shaft and running horizontally to it, is the shaft carrying the black and white shutter, also the color filter, both being run at the same speed. The color filter shaft is driven at the same rate of speed as the vertical shaft, by the one to one skew gear.

In order to reduce wear and tear of perforations, the necessary gate

method, operating over a similar length of film.

The steel pressure bars are hardened and burnished, and pressure is easily adjusted by thumb-nuts on the reverse side of the gate. Running vertically between the pressure bars are two brass plates, termed baffle plates, whose function is as far as possible to reduce the air space around the film. This, coupled with the totally enclosed gate, renders the firing of the film in the gate an absolute impossibility.

It is maintained that if the film in the exposure hole should fire from any cause whatever, one picture only can be burned, the perforations themselves remaining intact, so that even re-threading the machine is unnecessary. The gate, when closed, is securely locked by the spring catch on the top of the left sprocket, and is constructed so that it can easily be opened without fouling the color shutter.

It may be of interest to note the precautions for the prevention of film firing. In the event of film firing, a device working in conjunction with the rising and falling gate prevents the spread of fire above and below the exposure hole. The perforations themselves remain intact, so that the film is not severed, and the exhibition can proceed without the slightest indication of the accidental firing being shown to the audience. This is brought about by constructing the rising and falling gate in what is practically a fire-proof chamber.

It is pointed out that when the film is in position, the only outlet is through the exposure hole nearest to the lamp, the other side of the exposure hole being contained in a tube which also holds the lens, thus forming an air tight chamber on one side of the film. Should the film ignite in the exposure hole, the air contained in the chamber is suddenly heated and consequently expands, thereby discharging the products of combustion through the exposure hole.

It will be noted that inside the gate, exactly above and below the exposure hole, vertical baffle plates are provided which effectually prevent fire creeping along the film. The effect of an explosion upon a piece of film after exposure to the heat of an arc lamp of 60 amperes for the space of one minute to each picture, is that the picture only is destroyed, the perforations remaining intact, so that the display is not interfered with and the performance is not delayed, and there is absolutely no danger of fire with these precautions.

CHANGES IN THE PATENT OFFICE.

The death of the Honorable Robert T. Frazier, announced in another column of the AGE, has occasioned some changes in the Patent Office. The Hon. James T. Newton, the Second Assistant Commissioner of Patents, has been made the First Assistant, and Hon. Robert F. Whitehead, law clerk, has been promoted to take Mr. Newton's place. We had the pleasure of printing a picture of Mr. Newton in the January issue of the AGE. His promotion to First Assistant was looked upon as a foregone conclusion upon the death of Mr. Frazier. Mr. Newton had shown his fitness for official preferment by the splendid manner he had held the office of Second Assistant Commissioner.

Mr. Whitehead has been a law clerk in the Patent Office for several years. It is too late for the AGE to print a picture of Mr. Whitehead, and give a biographical sketch in this issue, as we are just going to press, but we will endeavor to inform our readers on this subject next month.

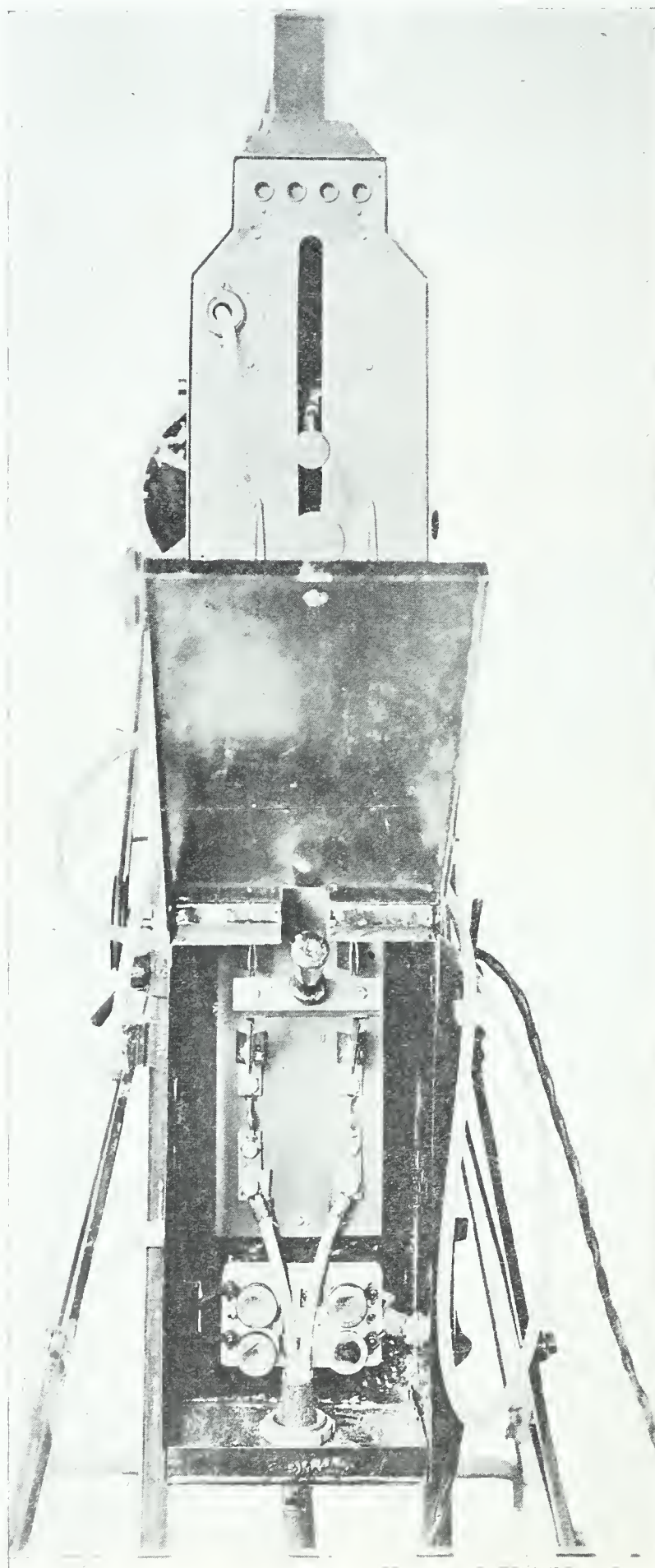


FIG. 2 —END-VIEW OF APPARATUS.

On the mechanical, or gear side of the projector, immediately behind the fly wheel, is a set of two to one spiral gears arranged to drive the vertical shaft at one half the speed of the fly wheel shaft. At the extreme top of this vertical shaft is the automatic governor whose function is to depress, at the moment the machine is set in motion, the shutter leaf. Midway up

pressure is spread over a very large area by means of three adjustable pressure bars on each side of the film. Greater retardation is obtained by employing as many pressure bars as possible, in preference to the usual method of one pressure bar only on each side, which, to produce the equal arresting power, would require more pressure than does the multiple base

LAUNCHING A SUBMERGED SEWER OUTFALL.

THE accompanying illustrations show the apparatus and methods employed in launching a sewer outfall extending about a quarter of a mile into the Atlantic Ocean at Ocean Grove, N. J., to discharge the effluent from the clarification tanks of a sewer district in Neptune township.

It may be stated that the system consists of approximately ten miles of terra-cotta pipe sewer. The outfall sewer at the beach is 15 inches in diameter. The portion of the pipe in the ocean is of 12 inch standard galvanized wrought iron pipe with screwed

were firmly embedded, a sheave was attached to them, through which was passed a five-eighth steel cable. One end of this cable was secured to the cast iron bedplate of the outlet anchor and pipe, while the other end was attached to the drum of a hoisting engine, and to prevent the outgoing and incoming lines of cable fouling each other, the incoming line was floated by means of five oil casks attached to it at intervals.

The truck used to enable the heavy outlet anchor plate to be pulled out to sea consisted of two six foot wheels

took place, for continued east winds and storms effectually prevented any attempt to put the sewer pipe out. At last an ideal day permitted the attempt. A light wind was blowing from the west, with a sea smooth and free from swells. When everything was in readiness the shaft on the drum of the hoisting engine broke, but fortunately it was a double drum hoist, so the cable was attached to the other drum and the tension put upon the cable at 10.15 a. m.

In order to relieve the strain on this cable a rope from the gipsy on the hoist was taken back toward Ocean Avenue and attached to the pipe, so as to assist in pulling. As the point at which this rope was attached came opposite the engine, it was necessary to stop, detach it, take it back and get a new hitch, when operations were started once more. These delays caused it to take two hours and fifteen minutes to put the outlet in place, but the actual time the pipe was in motion was thirty-nine and one-half minutes.

It is stated that as more and more of the pipe left the land it became continuously easier to move it, so that whereas at the start a 21 foot length of pipe required one minute to move its own length, at the end it only required thirteen seconds to go the same distance.

As soon as the shore end of the pipe was pulled out somewhat beyond high water mark, a bushing was screwed into it having a 2-inch pipe connection to a steam pump. Water was pumped in, which settled the outlet pipe, and also compressed the air in it. When this compression reached a sufficient amount to more than neutralize the pressure of the 33 feet of water overlying the outlet anchor, the plug blew out like a cork from a popgun, admitting the water and sinking the pipe.

There was an air pocket formed near the shore end, and a one-quarter hole was drilled in the pipe, allowing this air to escape, the hole being closed by screwing a bolt into it. The pipe now lay along the bottom of the ocean, the end at the beach being about three feet below high water mark and the other end about 33 feet below. The 3-inch ballast pipe was withdrawn and a temporary cap placed at the shore end until the connection with the sewer could be made.

As the tension on the cable was released, the weight of the anchor plate caused the shaft on the truck to tilt up, allowing the hook to disengage the anchor, whereupon the truck floated to the surface and was brought ashore.

Folding Stairway.

A folding stairway, designed to provide convenient access to lofts and attics, has been patented. This stairway when not in use may be folded up into the ceiling, where it fits compactly and has the appearance of a ceiling panel, so that it does not occupy valuable floor space. The operation is automatic, the stairway being handled by swinging rollers concealed under the landing, which first pull the stairway half way up and then flatten it into the ceiling through the action of a counterbalance. Friction is eliminated by roller bearings located between the stairs and the ceiling. A light push is all that is necessary to raise the stairway, and a pull on a chain brings it down.

DEATH OF ASSISTANT COMMISSIONER FRAZIER.

The death of the Hon. Robert T. Frazier, the First Assistant Commissioner of Patents, removes from the Patent Office an official who could ill be spared. Although holding the position for less than a year, Mr. Frazier had already demonstrated his eminent fitness for the office held by him. Whether it were the registration of a trade-mark, or an application for patent, or some administrative detail, Mr. Fraizer could always be relied upon to render his decision fairly and with exact justice to the interests involved. Rarely have we known an official more courteous in his dealings. It was a pleasure to have business relations before him.

Mr. Frazier came to the office well qualified to perform the duties of the important position to which he was appointed. By education and training, both inside and outside the Patent Office, first as an examiner and then as a practicing attorney, he was thoroughly schooled in all the intricacies of office practice, and could view disputed matters from the standpoint of the official as well as the practitioner.

Mr. Frazier had been ailing for several months before his death, but during that period he attended to his official duties with that fidelity of purpose which one would expect from a man of his high character.

Attorneys and officials alike mourn his death, and feel that his untimely end means to many the loss of a loyal and generous friend; and to that portion of the public having to do with inventions, the withdrawal of an administrative officer whose clearness of vision and justice of decision gave them all they could rightfully expect.

Greenheart Wood for Panama Canal.

Many details as to the construction of our wonderful canal have been published, but it is not generally known that a special kind of wood has been used for the sills and fenders in the lock gates. This wood is more durable than iron and steel when put in water, and is exempt from the attacks of white ants and other insects that ravage ordinary wood in tropical countries. The name of this wood is greenheart, and it has remained sound after being immersed in water for a century. It is tough and strong, with a crushing strength of 12,000 pounds to the square inch, and is used in ship and dock building, especially for purposes involving wear and tear. The tree is found in the jungles of South America. All the gates, piers, and jetties of the Liverpool docks are of greenheart, and Nansen's ship, the Fram, and the Antarctic ship the Discovery, were constructed of this wood.



FIG. 1.—PIPE ENTERING WATER.

joints and galvanized couplings. This terra-cotta pipe sewer extends alongside a fishing pier at Embury Avenue. Accordingly the full length of pipe to reach out to sea was screwed together along this avenue. Since the pier came directly opposite the prolongation of the street it was necessary to deflect the pipe at Ocean Avenue.

The surface of Embury Avenue being hard gravel, the pipe was placed on small wooden trucks on the portion laid along the street, while across the grass-plot, boardwalk and beach it was necessary to have stationary rollers, blocked up where necessary to the proper grade. To anchor the outer end of the pipe and also to raise it above the floor of the ocean so that it would be in no danger of choking with sand, this outer end was attached to a cast-iron plate with two cradles, and was bent upward at an angle of 45 degrees, as shown in the illustration.

In order to prevent the water entering while it was being run out to sea, the end of the pipe at the anchor was capped with a wooden cap, like a cork in a bottle. This cap was closely but not tightly fitted, and was heavily lubricated with a thick white lead at the joint, so as to prevent any water entering around it.

As standard 12 inch wrought iron pipe floats when filled with air and a floating pipe might be damaged by the swell of the ocean, a 3 inch ballast pipe was laid inside of it for the whole length, and this 3 inch pipe was filled with water, so as to partially sink the larger pipe. Somewhat over a quarter of a mile from the shore were placed five ship anchors, two of these being 500 pound anchors, the other three being somewhat lighter. When these

made of two thicknesses of 2-inch plank, with a further reinforcement of 2-inch plank on each side at the outer edge by way of a tire, thus making an 8-inch face for each wheel. A hook attached to the axle caught it about a foot from the beach, and a shaft, through the end of which the steel



FIG. 2.—PIPE READY FOR LAUNCHING.

cable passed, prevented the axle from turning over and dropping the heavy cast-iron anchor plate.

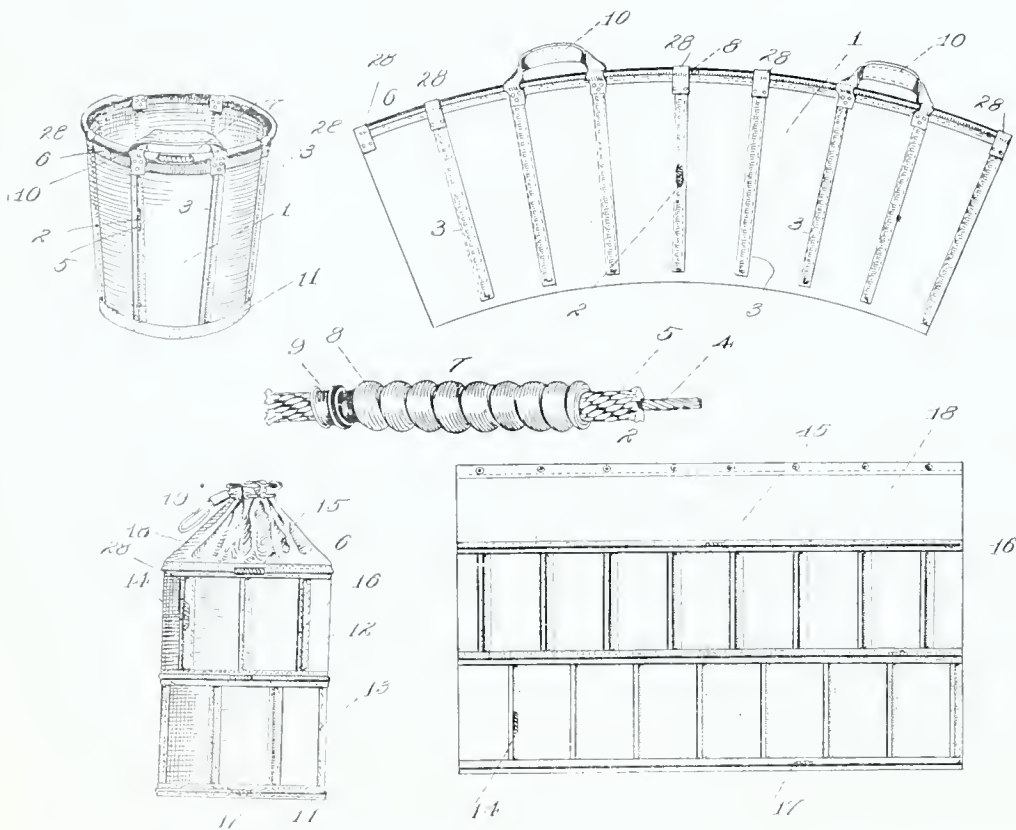
After everything was in readiness a somewhat tedious wait of eleven days

CLEVER NEW PATENTS.

FLEXIBLE SACK OR BAG—FENCE STAPLE—ELECTRIC LAMP ATTACHMENT FOR FIRE ARMS.

Flexible Sack or Bag.

A device which has manifold uses and advantages has been invented by Samuel R. Van Patten, of Ithaca, New York. While designed more particularly for handling coal in small quantities, it is equally well adapted for use as a basket, hamper, parcel post bag, or for general purposes. By a novel arrangement of side stays and mouth distending devices, the container is maintained in upright position, with its mouth at all times fully open, while at the same time, the container has the requisite yielding qualities to permit the same, when full, to conform readily to the shoulders of the carrier, and thus not only reduce the labor of handling to a minimum, but also practically eliminating strain and wear, thus measurably increasing the life of the article.



In the accompanying illustration there are shown two different forms of the invention, the two figures at the top representing a coal bag to be used in handling coal, while the two figures at the bottom represent a parcel post bag. The intermediate figure shows a detail of the mouth distender or reinforce.

Referring first to the two top figures, the figure to the left shows a completed coal sack, while the figure to the right represents the blank from which the bag or sack is made. The body 1 is constructed of heavy canvas, and is so shaped that when the two ends are assembled, a truncated cone-shaped structure is provided which will permit nesting of the sacks, one within the other. The body is formed with stays 2 which are held in place by pockets, stitched or otherwise secured to the blank and terminating short of the upper and lower ends thereof. By this arrangement the mouth of the sack may yield readily inwardly and outwardly independently of the stays.

The construction of the stays is one of the features of the invention, and is shown in detail in the view in the center of the cut. The object of the construction shown is to provide a stay which contains such inherent resiliency as to insure the retention of the sides of the container on straight lines, and yet permit ready yielding, as may be required. Each stay is composed of a cable 4, encased by a sheath 5 of braided, fibrous material. Arranged within the marginal pockets 6, provided at the top of the sack, is the distender 7, which embodies the construction of the core and in addition, contains a sleeve formed of two spirally wound resilient members 8 and 9, the whirls of which are oppositely curved in cross section. By reason of the spiral arrangement of the members of the sleeve, the distender as a whole will be free to yield inwardly when carried upon the shoulder, and thus materially lessen the labor of handling the loaded sack. To facilitate handling of the bag, handles 10 are provided.

When the invention is employed in the production of a parcel post bag, such as is shown in the two lower figures, two connected body sections 12 and 13 are utilized, each of which has stays 14 of the same general construction as previously described. Three distenders 15, 16 and 17 are made up of, each constructed in substantially the same manner as in the case of the distenders used in the coal bag. The upper portion of the bag is closed by a flexible mouth 18, with which is combined the sealing cord 19 of any preferred construction.

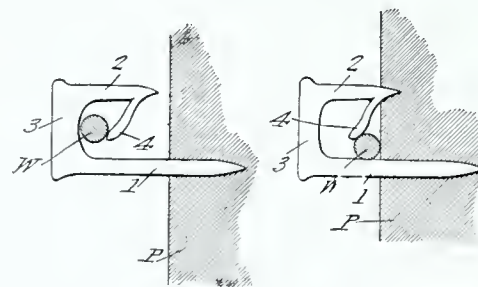
The merits and advantages of this invention will commend themselves to those who have occasion to use a bag, basket, or hamper in their business.

Fence Staple.

The object of this invention is to provide a device for securing fence wires to a post in an expeditious and secure manner by means of a novel form of staple, which is substantial and cheap in construction and serviceable in use. In the accompanying cut,

there is shown an elevation of the staple and illustrating how the same is applied to the fence wire, the view to the left showing the driving shank partially driven into the post with the short tine engaged with the wire, while in the view to the right, the wire is held against the main shank. In de-

tail, the staple is provided with a long shank or tine 1, a short tine 2, and a driving head 3 between the same. The short tine 2 is provided with an integral flexible bill or finger 4, extending from a point adjoining its tip or free end diagonally inward and terminating short of the butt end of the main tine.



In operation, the driving shank or main tine 1 is partially driven into the post P, and the fence wire W passed over the tip of the short tine against the bill 4. Then by further driving the staple into the post, the tip of the short tine is caused to bite or engage the post, and in this position the wire W is held against the post and the long tine 1, by the bill or finger 4.

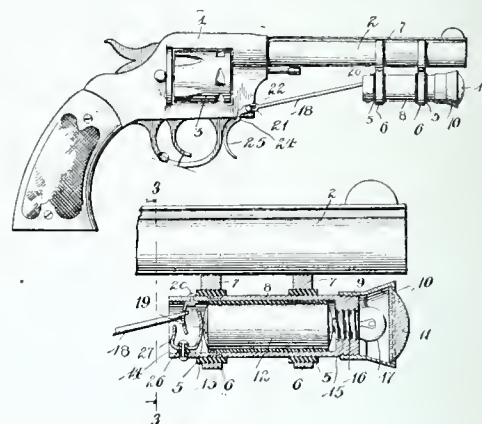
If desired, the wire W may be snapped within the bill or finger 4, as shown in the figure to the left. This is particularly desirable when fence wires or strands are strung up on posts standing in an irregular line. After this is done, the staple may then be driven home so as to bring the pointed end of the tine 2 in engagement with the post. The staple may thus be used to lock the wire post without the necessity of the staple being driven completely home.

The staple may be readily extracted or withdrawn when desired. The invention was patented by Charles T. Sheppard, of Holdenville, Okla.

Electric Lamp Attachment for Fire Arms.

A want that has long been felt by policemen is met by the invention of Joseph B. Williams, of Oakdale, Tennessee, who has invented an attachment for pistols to place the policemen at a greater advantage in confronting a burglar in the dark, at which time under ordinary conditions he has to shoot blindly in the direction where the offender is supposed to be. With the invention of Mr. Williams, before the pulling of the trigger of the pistol, an electric light is brought into action, so as to illuminate the space in front of the policeman, allowing the bullet to be sent in the proper direction. In the accompanying illustration, the invention is shown applied to an ordinary revolver in the upper figure, while in the lower

figure the attachment is illustrated in section. It comprises clips 6 having spring arms 7 which extend partially around the barrel, whereby the attachment is held in position, collars 5 being interposed between the clips and the attachment. The latter consists of a battery casing 8 of cylindrical form, having its forward end closed and threaded exteriorly to receive a lens mount 10, having a relatively strong lens 11 therein, whereby light may be projected for a considerable distance and concentrated on the object aimed at. The casing 8 receives the usual dry-cell 12, which is arranged in contact with a yieldable member 13, within a detachable portion 14 of the casing. At the forward end of the dry-cell, a socket 15 is provided to receive the threaded end of the lamp 17.



The circuit closing device comprises an actuating rod 18 which is located beneath the barrel and connected at its forward end with a spring contact 19, while at its rear end the rod 18 is provided with a head 21 having an elongated slot 22, which receives a guide screw 23 extending from one side of the pistol at a point in advance of the cartridge chamber thereof. From the head 21, the rod 18 extends downwardly, and is curved so as to provide a finger grip 25, which lies in advance of the trigger 4, so that it may be engaged with the first finger of the hand, while the second finger holds the trigger. The yieldable member 13 is insulated from the casing and is provided with a metallic portion 27, which lies in the path of the spring contact 19, so that when the latter is actuated by pulling the rod 18, the circuit will be closed and the lamp 17 lighted.

By this construction the patentee has provided a search light for pistols in which the electric lamp may be illuminated before the trigger of the pistol is pulled.

The illuminating attachment is such that it may be applied to any well known form of fire arm, and is not necessarily limited to pistols. Indeed, the attachment could easily be applied and removed and reapplied without affecting the pistol in any manner.

PATENTS

Send Your Business Direct to Washington ∴ ∴
∴ ∴ Saves Time and Insures Better Service.

Trade Marks,
Copyrights
and
Designs.

My office is close to the U. S.
Patent Office. Personal attention
given—OVER THIRTY YEARS
PRACTICE. Book "How to Ob-
tain Patents," etc., sent free.

E. G. SIGGERS, 918 F STREET, N. W.,
WASHINGTON, D. C.

LATEST COURT DECISIONS IN PATENT, COPYRIGHT AND TRADE-MARK CAUSES.

OSHKOSH GRASS MATTING CO. v. WAITE GRASS CARPET CO.

(Circuit Court of Appeals, Seventh Circuit. April 15, 1913. 207 F. R. p. 937.)

1. PATENTS—INFRINGEMENT—EVIDENCE.

Similarity of structure cannot be predicated on similarity of names, nor the mere use of old elements, as new combinations make new inventions.

2. PATENTS—VALIDITY AND INFRINGEMENT—GRASS TWINE MACHINES.

The Monahan & Kiereu patents, No. 688,789, for a grass twine machine, and No. 785,070, for a material feeding device for such machines, while valid, are of narrow scope and limited to the specific form of the improvements shown; as so limited, held not infringed.

KRELL AUTO GRAND PIANO CO. OF AMERICA v. STORY & CLARK CO. et al,

(Circuit Court of Appeals, Seventh Circuit. April 15, 1913. 207 F. R. p. 946.)

1. PATENTS—VALIDITY—DETERMINATION ON DEMURRER

A patent cannot be held invalid on demurrer to a bill for its infringement unless inevitably void either on its face or by reason of matters of such universal or common knowledge that the court may take judicial notice of them.

2. PATENTS—VALIDITY—PATENTABLE COMBINATION.

A patent for a mechanism consisting of two or more elements is not necessarily invalid as an aggregation because there is no direct coaction between the elements, where such coaction comes to produce a unitary result through the mediation of the operator or the operating force.

3. PATENTS—VALIDITY—AUTOMATIC PIANO PLAYER.

The Welu patent, No. 825,784, for an automatic playing attachment for musical instruments, is not void on its face either for lack of patentable novelty or as an aggregation of old elements.

4. PATENTS—"AGGREGATION" DEFINED.

In one sense (which, in the interest of accurate terminology, might well be taken as the exclusive sense) "aggregation," in the law of patents, means that the claims in and of themselves, independently of the prior art, show that the elements are incapable of coacting to produce a unitary result.

MINERALS SEPARATION, Limited, et al. v. HYDE.

(District Court, D. Montana. July 28, 1913. 207 F. R. p. 956.)

1. PATENTS—PATENTABILITY—"PROCESS"—"PATENTABLE PROCESS."

Broadly speaking, a "process" is a definite combination of new or old elements, ingredients, operations, ways, or means to produce a new, improved or old result, and any substantial change therein by omission, to the same or better result, or by modification or substitution, with different function, to the same or better result, is a new and patentable process. New or substantially changed methods whereby the product is bettered, increased, or cheapened may be a new and "patentable process."

2. PATENTS—PROCESS—DESCRIPTION—STATEMENT OF QUANTITIES.

In a patent for a process, which is not of itself the result sought, but only the means thereto, a range of quantities that leaves something to the judgment of the operator is all that can be described, and is sufficient.

3. PATENTS—PERSONS ENTITLED TO PATENTS—JOINT INVENTORS.

Where an invention was the result of experiments made by an employee under instructions given by his employers, after consultation between themselves, to which each contributed suggestions, from time to time observing his work and maintaining reports thereof, it was the joint invention of the employers, and properly patented as such.

4. PATENTS—VALIDITY AND INFRINGEMENT—PROCESS OF ORE CONCENTRATION.

The Sulman, Picard, and Ballot patent No. 835,120, for a process of ore concentration, was not anticipated, and discloses novelty and invention; also held infringed.

UNDERFEED STOKER CO. OF AMERICA v. RILEY et al.

(District Court, D. Massachusetts. Sept. 23, 1913. 207 F. R. p. 963.)

1. PATENTS—VALIDITY AND INFRINGEMENT—UNDERFEED FURNACE.

The Daley patent No. 644,664 for a furnace having an underfeed held not anticipated, valid and infringed on motion for a preliminary injunction.

2. PATENTS—SUIT FOR INFRINGEMENT—PRELIMINARY INJUNCTION.

When a patent has been sustained after a thorough defense by competent and diligent counsel, and the defendants' structure in a subsequent case is substantially like that involved and held to infringe in the prior suit in essential particulars, the complainant should be given the benefit of such adjudication on an application for preliminary injunction; and the burden rests on the defendant to distinguish the cases.

NEW YORK CONTINENTAL JEWELL FILTRATION CO. v. CITY OF HARRISBURG.

(District Court, M. D. Pennsylvania. August 25, 1913. 208 F. R. p. 10.)

PATENTS—VALIDITY AND INFRINGEMENT—FILTRATION PROCESS AND APPARATUS.

The Jewell Patents No. 644,137, and reissue No. 11,672, respectively, for a process and apparatus for filtration of water, consisting of the use of a new type of sand filter known as the down draft or negative head filter, which by creating a vacuum through the use of a vertical discharge pipe in the bottom utilizes the whole sand bed as a filtering agency, whereas the sediment layer forming on its surface had previously been the only effective agency, were not anticipated and disclose a useful and novel invention; also held infringed.

EDISON et al. v. ALSEN'S AMERICAN PORTLAND CEMENT WORKS.

(District Court, S. D. New York. May 7, 1913. 208 F. R. p. 20.)

PATENTS—INVENTION—APPARATUS FOR MAKING PORTLAND CEMENT.

The Edison patent No. 802,631, for an apparatus for burning Portland cement clinker is void for lack of patentable invention, being merely for a longer kiln than those in common use when it was applied for.

SIROCCO ENGINEERING CO. v. B. F. STURTEVANT CO.

(District Court, S. D. New York. Oct. 8, 1913. 208 F. R. p. 147.)

PATENTS—VALIDITY AND INFRINGEMENT—CENTRIFUGAL FAN.

The Davidson reissue patents, Nos. 12,796 and 12,797 (original No. 662,395), for a centrifugal fan or pump were not anticipated and disclose invention. The claim that the reissues are invalid because the claims are broader than those of the original patent and because the corporation to which they were issued was not an assignee of the original patentee but merely a licensee held not sustained. Both patents also held infringed.

VAN BRUNT v. LA CROSSE PLOW CO.

(District Court, W. D. Wisconsin. Oct. 10, 1913. 208 F. R. p. 281.)

1. PATENTS—SUIT FOR INFRINGEMENT—PROFITS RECOVERABLE.

On an accounting by an infringer, where the patented article is only a part of the machine, but the entire value of the whole machine as a marketable article is properly and legally attributable to the patented feature, the profits are to be calculated on the whole machine, and such entire profits are also recoverable although the salability of the machine is in part due to other features owned by defendant, where it is impossible to determine what proportion of the sales are due to the latter features.

2. PATENTS—SUIT FOR INFRINGEMENT—PROFITS RECOVERABLE.

The evidence showed that sales of a grain seeder made by defendant in certain territory were due entirely to the use thereon of a furrow opener which was an infringement of complainant's patent, but that in other parts of the country, with different soil, such furrow opener was not an important factor and the salability of the machine was due more to other features. Held, that complainant was entitled to recover the entire profits made by defendant on the machines sold by it in the first territory.

TOLEDO COMPUTING SCALE CO. v. COMPUTING SCALE CO.

(Circuit Court of Appeals, Seventh Circuit. April 15, 1913. 208 F. R. p. 410.)

1. PATENTS—INVENTION—SUBSTITUTION OF MATERIALS.

Lessening the weight of a part of a machine, while a change in degree, is not necessarily merely a matter of degree; and, where it converts a machine which is a failure into one which is a success and is the first practically efficient and reliable machine of the kind, something more is involved, and the change is one of kind resulting in a new mechanism, which constitutes "invention."

2. PATENTS—VALIDITY AND INFRINGEMENT—COMPUTING SCALE.

The Smith reissue patent, No. 11,536 (original No. 645,616), for a computing scale, held valid and infringed.

3. PATENTS—INVENTION—COMPUTING SCALE.

The Smith patent, No. 579,300, for a computing scale, claim 2, held void for lack of invention.

4. ACKNOWLEDGMENT—CERTIFICATE—ASSIGNMENT BY CORPORATION.

The assignment of a patent by a corporation should show in the acknowledgment that the persons signing as officers were personally known to the notary, that they stated on oath that they were such officers, and were authorized by the board of directors to execute the instrument, that the corporation had no seal, or that the genuine seal was attached, and that they acknowledged the instrument to be the free act and deed of the corporation.

MOTION PICTURE PATENTS CO. v. ECLAIR FILM CO.

(District Court, D. New Jersey. Sept. 4, 1913. 208 F. R. p. 416.)

1. PATENTS—SUIT FOR INFRINGEMENT—DEFENSES.

An allegation in the answer in an infringement suit that the United States had instituted a suit for the dissolution of complainant corporation as an illegal monopoly states no ground of defense, since the fact alleged, if proved, would be irrelevant.

2. MONOPOLIES—INJURY TO COMPETITORS—RIGHT TO RECOVER DAMAGES.

That a corporation is a monopoly, in violation of the Anti-Trust Act (Act July 2, 1890, c. 647, 26 Stat. 209 [U.S. Comp. St. 1901, p. 3200] and Stat. to dissolution at suit of the government, does not of itself give a right of action for unfair competition to any particular person, but, to sustain a claim for damages, specific injury must be proved.

3. TRADE MARKS AND TRADE-NAMES—UNFAIR COMPETITION—ACTIONS—PLEADING.

Fraud is the basis of all actions of unfair competition, and, as that is never presumed, the facts relied on to show fraud must be pleaded and proved.

4. SET-OFF AND COUNTERCLAIM—IN EQUITY

A legal demand cannot be pleaded as a set-off or counterclaim in an equity suit, but under new equity rule 30 (201 Fed. v. 118 C. C. A. v) it must be a demand "which might be the subject of an independent suit in equity."

SUPERIOR HAY STACKER MFG. CO. v. DAIN MFG. CO. OF IOWA.

(Circuit Court of Appeals, Eighth Circuit. Sept. 1, 1913. 208 F. R. p. 549.)

1. PATENTS—VALIDITY AND INFRINGEMENT—HAY STACKER.

The Dain patent, No. 608,653, for a hay stacker, claims 1, 2, 4, and 12, construed, and held not anticipated and to disclose patentable invention; also held infringed by the structure of the Vroom patent, No. 819,187.

2. PATENTS—CONSTRUCTION—USE OF WORDS "SUBSTANTIALLY AS DESCRIBED."

That claims of a patent use the words "substantially as described" does not necessarily limit the patentee to the exact construction shown in the drawings and specification.

3. PATENTS—SUIT FOR INFRINGEMENT—COSTS.

Where the decree in an infringement suit, which incidentally awards costs to the complainant, is affirmed on the merits, it will not be reversed on the question of costs.

MONASH YOUNKER CO. v. NATIONAL STEAM SPECIALTY CO.

(Circuit Court of Appeals, Seventh Circuit. April 15, 1913. 208 F. R. p. 559.)

PATENTS—VALIDITY AND INFRINGEMENT—RELIEF-VALVE FOR STEAM RADIATORS.

The Brissenden patent, No. 952,414, for an automatic relief-valve for steam radiators

in which the proper adjustment of the parts is indicated by the escape of steam when the valve seat is displaced, in view of the prior art cannot be given a broad construction, but must be limited to the peculiar arrangement of the parts shown, and as so limited is not infringed by the device of the Leuthesser patent, No. 944,538, in which a stem indicates displacement, operating mechanically, without the aid of the steam pressure.

GENERAL ELECTRIC CO. v. YOST ELECTRIC MFG. CO.

(District Court, N. D. Ohio, W. D. June 11, 1913. 208 F. R. p. 719.)

1. PATENTS—SUIT FOR INFRINGEMENT—LACHES.

The owner of a patent held barred by laches from maintaining a suit for its infringement where defendant had been making and extensively selling the alleged infringing article for seven years prior to the commencement of the suit, to complainant's knowledge, and during all of such time the parties were in litigation over other patents but no claim of infringement of the one in suit was made by complainant.

2. EQUITY—"LACHES"

The defense of laches is not tested by time alone. A comparatively short time may constitute laches when the conduct of the slothful is such as to induce others in good faith to expend money and take the risks of enterprise.

STATEMENT OF

The Ownership, Management, Circulation, Etc.

—OF—

THE INVENTIVE AGE

Published monthly at Washington, D. C.,

required by the Act of August 24, 1912.

M. S. EMERY and E. G. SIGGERS, - Editors-
Managing Editors - - - - - Same
E. G. SIGGERS & J. H. SIGGERS Business Mgrs
E. G. SIGGERS, - - - - - Publisher

Owners: If a corporation, give names and addresses of stockholders holding 1 per cent or more of total amount of stock

E. G. SIGGERS.

Known bondholders, mortgagees, and other security holders holding 1 per cent or more of total amount of bonds, mortgages, or other securities: None.

Signed, E. G. SIGGERS, Owner.

Sworn to and subscribed before me this 7th day of April 1914.

Signed, JOHN H. SIGGERS

(SEAL)

Notary Public.

My commission expires November 16, 1916.

A NEW CREATION

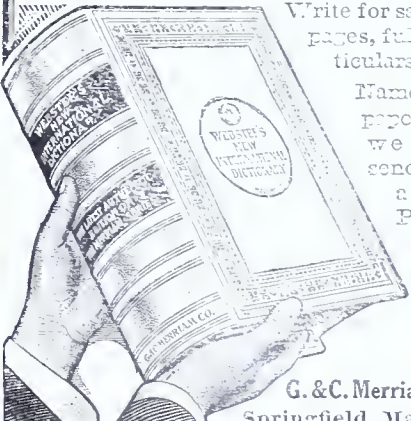
**WEBSTER'S
NEW
INTERNATIONAL
DICTIONARY**

THE MERRIAM WEBSTER
The Only New unabridged dictionary in many years.

Contains the *pith* and *essence* of an authoritative library. Covers every field of knowledge. An Encyclopedia in a single book.

The Only Dictionary with the New Divided Page.
420,000 Words. 2700 Pages. 6000 Illustrations. Cost nearly half a million dollars.

Let us tell you about this most remarkable single volume.



Write for sample pages, full particulars, etc. Name this paper and we will send free a set of Pocket Maps

G. & C. Merriam Co.
Springfield, Mass.

MECHANICAL INVENTIONS

Patents for which have been procured through the Patent Soliciting Office of E. G. Siggers, Patent Lawyer, Washington, D. C.

Henry Q. Maurino, Albuquerque, New Mexico. Concrete Mixer.—It is the object of the invention of this patent to provide a concrete mixer capable of continuous operation for rapidly and thoroughly mixing concrete and other material, either in a dry or wet condition, and adapted to be easily operated to dump the contents of the receptacle in which the materials are mixed and to return the receptacle to an upright position for receiving another batch of material, without stopping the machine. The machine includes a rotary shaft consisting of horizontally aligned terminal portions, angularly arranged intermediate portions extending in opposite directions from the horizontal portions, and a central connecting portion set diagonally with relation to the terminal portions and arranged at right angles to and connecting the intermediate angularly disposed portions. A mixing receptacle mounted on and carried by the central diagonal portion of the shaft and tilted alternately in opposite directions through the rotary movement of the shaft, means fixed to the shaft and rotating within the receptacle for mixing and agitating the contents thereof, a rod loosely connected with the mixing receptacle at the bottom of the same, and means for detachably securing the rod for holding the mixing receptacle against rotary movement during the mixing operation. When the rod is released the shaft will rotate the receptacle to dump the same.

Grover C. Holyfield, Edward C. Holyfield, and Walter B. Holyfield, Damascus, Arkansas. Combined Harrow and Land Roller.—This invention has for its object to provide a combined harrow and land roller adapted to permit the barrow teeth to remain in the ground when the roller rises in passing over an obstruction, and capable of being operated to raise the harrow teeth and withdraw the same from the ground for the purpose of cleaning the teeth of trash, and also to arrange the implement for traveling from one field or place to another. The invention comprises a front supporting wheel, a harrow frame pivotally connected with the wheel and provided with a plurality of barrow teeth normally engaging the ground, an auxiliary frame pivotally connected to the harrow frame at the rear, and a transversely disposed roller journaled in the auxiliary frame at one side of the pivotal connection, whereby the roller will travel over an obstruction without lifting the harrow teeth out of the ground. The auxiliary frame is provided with an operating handle for lifting the harrow teeth out of the ground when desired.

William I. Harp, Galax, Virginia, inventor; William L. Harkey, Lexington, North Carolina, assignee. Bed Brace.—The object of this invention is to provide a strong and durable bed brace equipped with a device adapted to be easily operated and capable of exerting a powerful pull on a plurality of braces, whereby the head and foot boards and the side rails of a bed are firmly held together. The bed brace comprises a plurality of crossed braces, links connected with the braces at their points of crossing, and a stretching or tightening device consisting of a horizontal coiled portion

connected at diametrically opposite points with the said links, and a handle extending from the outer end of the coiled portion and provided at its inner portion with offsetting bends adapted to arrange the handle above the plane of the said braces.

John Mosiman, Sedalia, Missouri. Extension Step Ladder Attachment.—The present invention relates to an extension step ladder attachment, designed principally for use in connection with a jack of a previous patent, and capable of adjustment to correspond with the adjustment of the jack, and adapted also to permit a person to easily and conveniently get up to and down from a platform carried by the jack, especially when the platform is in a more or less elevated position. The device comprises a supporting plate provided with notches and mounted on a standard, a lifting bar slidable along the standard and having means for engaging the notches, a front plate carried by the lifting bar and provided with an eye, a ladder provided with projecting arms spaced apart a sufficient distance to receive the standard between them and to permit the ladder to rest against the rear side of the standard, and a pin piercing the arms and adapted either to rest in one of the notches of the supporting plate or to be arranged in the eye of the front plate, whereby the ladder is interchangeable and adapted to be arranged at either the back or front of the standard.

Bruno L. Pape, New Braunfels, Texas. Wardrobe. It is the aim of the present invention to provide a wardrobe designed for use in hotels and homes, either as a portable or a stationary wardrobe, and capable of being arranged upon the floor or suspended from the ceiling, and equipped with a shelf forming upper and lower compartments, and provided with supporting means for enabling garments to be suspended within the lower compartment. The wardrobe comprises a vertical standard including a permanently attached section, and a reversible portion provided with means for connecting it with the permanently attached portion at either end thereof, so as to project either from the top or bottom of the wardrobe to form either a support for mounting the wardrobe upon the floor or a hanger for suspending the wardrobe from the ceiling, and a combined base and attaching plate secured to the outer end of the reversible portion of the standard and presenting a flat outer face to fit the floor or ceiling.

Harry C. Rush, Dawson, Pennsylvania. Valve Removing Apparatus.—This invention relates to a valve removing apparatus for internal combustion engines. Heretofore devices have been provided for compressing the actuating springs of such valves, but difficulty has been experienced with such devices, for the reason that the fulcruming or supporting means engaged the valve and clamped the same against the seat, rendering it practically impossible to partially rotate the valve stem for arranging the pin or key in the most convenient position for ready removal. Also with lever operated devices of this character, there has been more or less liability of the spring slipping off the device and pinching or otherwise injuring the fingers of the operator. The object of the present invention is to provide a valve removing apparatus adapted to be supported on the valve casing and capable of adjustment so as to arrange it out of contact with the valve to permit the stem to be rotated freely to facilitate the ready removal

of the pin or key when the same is relieved of spring pressure. The device includes a supporting plate adapted to be arranged on or fitted against the valve casing, a fulcrum adjustably connected with the supporting plate and extending through the same and into the casing and movable inwardly and outwardly to arrange it out of contact with the valve, a lever pivotally connected with the fulcrum, a lifting bar pivoted to the lever and provided with means for engaging the spring of the valve, and means for locking the parts against movement to maintain the spring in a compressed condition.

Ahraham L. Townsend, Iola, Kans. Three patents.—The first patent covers an instrument for extracting a dead fetus from a pig or other animal, and capable of operating on the same in either a head or post presentation, and adapted to penetrate the intestines or stomach cavity to let out the gas, thereby greatly facilitating the removal of the fetus. Another object of the invention is to provide an obstetrical instrument adapted to be introduced into an animal in a closed position so as to enable a dead fetus to be removed with a straight pull, without liability of lacerating the female animal. The instrument comprises a tube provided with opposite slots, a rod slidable in the tube and having a screw forming a spiral tip adapted to be projected beyond the tube, and a pair of hooks or gaffs extending through the slots of the tube and pivoted at their inner ends to the rod and carried into and out of engagement with the walls of the slots of the tube to fold them against the latter or to extend them therefrom.

The second patent relates to obstetrical forceps for facilitating the delivery of various animals, especially pigs, and adapted to grip firmly a young pig or other animal around the neck and capable of extracting such animal without liability of crushing its skull. Another object of the invention is to equip the instrument with smooth gripping jaws and with operating handles adapted to indicate the position of the jaws, so that after the same have been introduced into an animal, they may be opened and closed with accuracy. The instrument consists of a rod or stem, a pair of curved jaws located at the outer end of the stem and arranged to swing transversely to open and close them and forming a loop when closed, to encircle the neck of an animal, and arms arranged at the inner end of the rod or stem and connected with the jaws for opening and closing the same.

It is the aim of the invention of the third patent to provide a stock breeding appliance designed to take the pressure off of young gilts and other animals to prevent them from being crushed or otherwise injured by a heavy boar. The breeding appliance includes an arched support or rest arranged at an elevation and adapted to fit over or straddle the back of one animal to constitute an exterior support for another animal, legs connected with the support or rest and spaced apart to permit an animal to be arranged between them, and means for confining an animal within the support or rest. The arched support or rest and the legs are adjustable to fit animals of different sizes.

Mildred E. Palmer, Pueblo, Colo. Postal Card Case.—This invention relates to folding cases designed to enclose souvenir or picture postal cards, and has for its object to provide a simply constructed, and more or less ornamental book like case which will hold a number of cards in a neat and

orderly manner and protect them from dust and injury, and yet preserve them for ready and convenient reference. The invention consists of a folding case comprising spaced apart oppositely disposed sides or covers connected by a back, inwardly extending top and bottom flaps of a width substantially that of the back and carried by said sides or covers, the top and bottom flaps of each side being adapted to overlap, the free longitudinal edge of the inner flap of each side bearing against the inner face of the opposite side to maintain the sides properly spaced, and a fastening cord or tape extending from the inner face of each side and adapted to be passed around the outer edges of the contents of the case and tied, whereby the case and its contents will be held in a closed position.

Cunningham & Flowers, Grand Saline, Texas. Wrench.—The object of the invention is to improve the construction of nut wrenches, or what are commonly known as monkey wrenches, by providing a simple, efficient and comparatively inexpensive device of strong and durable construction, capable of instantaneous initial or preliminary adjustment to fit any sized nut or other object within its capacity, and having a quick final adjustment to rigidly engage the object operated upon. To carry out this object, there is provided a shank having a fixed jaw at the outer end, a sliding jaw movable along the shank and having a cam edge, a rotary sleeve swiveled to the sliding jaw and mounted on the shank for rotary and sliding movement, and having a cam edge for engaging the cam edge of the sliding jaw, said sleeve being provided with inclined and transversely disposed grooves, a casing slidably mounted on the shank, a pawl carried by the casing and engaging the shank for locking the casing against inward movement, and coupling means carried by the sliding jaw and the casing and engaging in the said inclined grooves of said sleeve.

George P. Crutchfield, Greensboro, North Carolina. Windlass Attachment for Vehicle Brakes.—The object of this invention is to provide a windlass attachment adapted to be readily applied to various kinds of vehicles and to different forms of vehicle brakes for the purpose of applying the brakes with great force and positively carrying the brake shoes out of contact with the wheels so as to relieve the former of wear when the brake is released. Another object of the invention is to provide a windlass attachment designed particularly for use on farm wagons, hay racks, stock racks, where it has been the practice to apply the brakes by means of a rope and pulley, the attachment being capable of operation at either side or end of a vehicle, and of being readily transferred from one vehicle body or rack to another. The device includes a bearing bracket comprising a vertical bar adapted to fit against the outer face of the side of a wagon body, an approximately L shaped arm to hook over the upper edge and fit against the inner face of the side of the wagon body, and upper and lower outwardly extending arms having vertically aligned bearings, the upper bearing arm being also provided with a fixed ratchet member, a vertical windlass shaft removably arranged in the said bearings, a locking dog mounted on the windlass shaft for engaging the ratchet member thereof, and means carried by the windlass shaft and connected with the dog for operating the same.

NEW PATENTS FOR SALE.

Advertisements inserted in this column for 10 cents a line (about 7 words) each insertion. Every new subscriber sending \$1.00 to THE INVENTIVE AGE will be entitled to the AGE one year and to five lines three times FREE. Additional lines or insertions at regular rates.

FOR SALE—Patent No. 1,080,663, patented Dec. 9, 1913. Harrow and Cultivator. Cheaply manufactured. For further particulars address owner, Adolph Stavinoha, Engle, Tex. jy

FOR SALE—Singletree Patent issued May 6, 1913. Farmers need them. Can be manufactured for thirty-five cents each. Address, George Culli, Millstadt, Illinois. jy

FOR SALE—Patent No. 1,088,545, dated Feb. 24, 1914. "Shure On" Clothes Fastening Device. For particulars address Edward Sears Crumb, Box 6, Charlestown, R. I. jy

FOR SALE—Automatic Shut-Off and drain cock for water pipes in buildings. Pipes cannot freeze and burst if this attachment is used. All offers considered. Address, C. D. Blackman, Box 21, Dodge City, Kansas. jy

FOR SALE—Patent No. 1,061,799, dated May 13, 1913. The simplest and most practical invention of spring wheels for autos and all kinds of vehicles. Address, Benjamin Anderson, Reliance, Wyoming. jy

FOR SALE—The Herr Fender for Street Cars. is the best fender on the market. It has proven its efficiency. Light, durable and no intricate parts to maintain. Write for particulars, William Dickenson, 1526 Dublin Street, New Orleans, La. jy

FOR SALE outright—Patent No. 1,079,059, issued Nov. 18, 1913. Trolley Collector Shoe. Can be used on all electric traveling cranes. For further particulars write to William H. Miller, 37 N. 4th St., Emaus, Pa. jy

FOR SALE—U. S. Patents No. 1,017,456, improvements in puncture proof tires for automobile wheels; and No. 1,054,604, improvements in lifting jacks, and particularly in screw jacks. Will sell cheaply. For particulars address, Wm. Pavlik, Box 132, Bayport, New York. jy

FOR SALE—Patent No. 1,082,602. Flashing. Does away with the old many piece tin shingle. The only water tight flashing. Address, John E. McCarville, 541 3rd Ave. N., Fort Dodge, Iowa. jy

FOR SALE—U. S. Patent No. 1,080,154. Fire Arm Silencer. The most effective one made. No hoax. The real thing. A money maker. Address, H. P. Moore, 89 Whittlessey Ave., Norwalk, Ohio. jy

FOR SALE—Patent No. 1,074,536. Safety feed water controller for boilers. A very necessary appliance for every steam boiler. Patent will be sold outright or on royalty. Address, Fred Wallace, Route 3, Eden, New York. jy

FOR SALE—Patent for splicing cotton ties, with thirteen machines ready for work. Ready demand for spliced ties in cotton belt. Also used for splicing barrel hoops. Great opportunity for the right party. Will sell outright or State rights. J. L. Newton, Social Circle, Ga. jun

FOR SALE—Fertilizer Distributer and Seed Sower Combined. U. S. Patent No. 1,011,071, Canadian Patent No. 142,439. Also spring railroad tie. U. S. Patent No. 1,046,480. Address, Louis Mehlberger, General Delivery, Detroit, Michigan. jy

FOR SALE—Patent No. 1,061,421. Device to attach to rotary street sweeper for collecting sweepings. Address, John Suszycki, Reedsburg, Wisc. my

FOR SALE—Patent No. 1,076,228, dated Oct. 21, 1913. Currycomb and Cleaner. For further particulars address owner, Nathan W. Price, Route 1, Box 62, Columbus, Miss. my

FOR SALE cash or royalty—U. S. Patent No. 1,075,132. Car ticket holder. Discards one ticket at a time. Adaptable to all sized tickets. Can be carried in pocket. Address, A. Westensee, Galva, Iowa. my

FOR SALE—Patent No. 1,075,306. Window sash. Cheaply manufactured. Quick seller. A large profit to manufacturers. Terms outright or part royalty. For copies and information apply to E. C. Shepherd, Linden, Wisc. my

FOR SALE cash or royalty—U. S. Patent No. 1,081,417. Smoke consumer for gas and gasoline lights. Prevents blacking and soiling of ceiling and walls. Address, Albert J. Wilkins, Coal Center, Pa. jun

FOR SALE—Patent No. 1,045,045, dated Nov. 19, 1912. Lumber piling machine. Designed for handling lumber, logs, rails, or other heavy material, for transferring from a wagon to a stack or in loading and unloading cars, boats and other vehicles. Is adjustable to accommodate different lengths of material. Address, William Larson, Bonner, Montana. jun

FOR SALE outright—Patent on squeezing and pressing device for fruits and vegetables. Is very simple in construction; can be cheaply manufactured, and does its work perfectly. Address, Mike Nemes, Box 364, Fort Dodge, Iowa. my

FOR SALE—Patent No. 1,077,957, issued Nov. 11, 1913. A hay scatterer. Address, Peder J. Anderson, 108 S. Morris St., Stoughton, Wisc. jun

FOR SALE—New patented wrench of great merit. Would sell outright or on royalty basis. Instantaneous Wrench Co., Box 311, Grand Saline, Texas. jun

FOR SALE—Patent No. 965,411. Combination cultivator and furrow maker. Also Patent No. 971,218. rotary harrow, outright or royalty. Address, Sigmund Schaller, Haddan, Conn. jun

FOR SALE—Patent No. 1,078,075, dated Nov. 4, 1913. Rail Tie. This rail tie is simple, strong, reliable, economical and ornamental. For further particulars address J. D. Warrell, Deweyville, Texas. jun

FOR SALE cash or royalty—Patent No. 1,076,345. Tire shoe for rubber tires of automobiles, etc. This shoe will prevent rubber tires being punctured and to keep them from wearing out. Address, A. S. Bullock, Aitkin, Minn. my

FOR SALE Patents—or part interest in locks for public buildings. The only both ways operated single or double door locks on the market; catches either way, or makes push doors. Address, A. M. Hoes, Grand Island, Nebraska. m

FOR SALE—I have patent pending, Serial No. 787,960, on an automatic lock for the inside of double doors, such as cupboards and the like, in the place of a book. In opening the first door, the second door is unlocked, and closing the first door the second door is locked automatically. Simple and cheap to manufacture. Write for particulars, Frank E. Davis, R. F. D. No. 2, Payette, Idaho. m

FOR SALE—Patent No. 1,022,626, dated April 9, 1912. Self-detaching holdback for all single horse vehicles. Works automatically and obviates the wrapping of shafts. When the traces are detached the draft animal is free to move forward from the vehicle. Will sell the patent at a reasonable price, as I am in the lumber business and have as much as I can attend to. For full particulars address, W. A. Hagerman, 897 Queens Ave. London, Ont. m

FOR SALE—Cash. Patent No. 1,049,242, issued December 31, 1912. Combined mop holder and wringer. The mop will perform any one of the three different operations at will and without any adjustment whatever, either as a mop, mop wringer, or scrubber. Walls and ceilings may be cleaned. Simply remove the scrubber. The mop has been thoroughly tested for seven months and has been enthusiastically received by every woman who has tried one. All offers considered. Address, J. W. Krueger, Litchfield, Minnesota. m

WANTED.

WANTED—Manufacturer to manufacture "Childs Weaving Frame," made of wood. Newly patented. Address, Frank Thomason, 124 Eufaula St., Norman, Okla. my

BUSINESS OPPORTUNITIES.

EVERYBODY WANTS SMITH'S
END-LOCK STOVE PIPE.

CHAS. F. LAGANKE

MANUFACTURER OF

HIGH GRADE SPECIALTIES

MODELS AND EXPERIMENTAL WORK,

SPECIAL TOOLS.

Card Building, 118 St. Clair Ave. N. E.,
Correspondence Solicited. CLEVELAND, O.

Electrical Review and Western Electrician

Published weekly from the center of the industry, this publication is in the best possible geographical position to gather and present the most important and interesting news of the entire electrical industry.

SUBSCRIPTION PRICE

U. S. \$3.00 per year. Canada \$4.00 per year. Foreign Countries \$6.00 per year. Sample Copy Free

It is seen and read by practically every buyer of electrical material in this country and abroad. Advertising rates on application.

ELECTRICAL REVIEW PUBLISHING CO., 507 Marquette Bldg., CHICAGO.

A NEW BOOK FOR INVENTORS

Patents and How to Make Money out of Them,

By W. B. HUTCHINSON.

This is the only book published, giving a detailed and full account, from the author's actual experience, of just what steps are necessary from the time the invention is conceived, to the time it is sold, with a clear and concise resume of the law and practice, legally and commercially, of trade-marks and copyrights. It also tells accurately how and what to invent. How to sell inventions. Place them on the Market. Interest Capital in them, and to successfully Promote a Stock Company. It also contains an index of forms worth double the price of the book to any one interested.

ELEGANTLY CLOTH BOUND

GOLD STAMPED. \$1.00 Postpaid

Sent with one subscription to AGE for \$1.50

Or will sell separately.

Address—The Inventive Age Pub. Co.,

918 F St., N. W. WASHINGTON D. C.

HALF-TONES ZINC ETCHINGS
DESIGNS

LANMAN

ENGRAVING

COMPANY

PROCESS ENGRAVERS, ILLUSTRATORS, DESIGNERS.

TRADE-MARK DRAWINGS
EXECUTED.

"Quality and Speed"

POST BUILDING

Fourteenth St., and Pennsylvania Ave. N. W.

Phone, Main 673

SEND FOR YOUR FREE COPY TODAY

OF

MODERN ELECTRICS & MECHANICS.

The big 148-page illustrated monthly magazine that tells you how to make flying machines, wireless sets, motors, engines, home furniture, models, etc., Invaluable to inventors and everyone who uses tools or is interested in mechanics or electrics. Profusely illustrates and describes these subjects in a style you will easily understand and enjoy.

You should read at least one non-technical magazine and keep up to date on the new wonders and advances in electricity and mechanics.

Fifteen cents per copy on news stands, \$1.50 per year by subscription.

To acquaint new readers with this distinctive illustrated magazine we will send sample copy free on request.

Send for your copy now.

MODERN ELECTRICS & MECHANICS 813 RELIANCE BLDG.,
NEW YORK, N. Y.

ATTENTION INVENTORS!

LISTS OF MANUFACTURERS FURNISHED.

We have increased our facilities for furnishing lists of manufacturers, and now cover every line of industry. The names are obtained from well known directories.

Our charge for each list is one dollar.

In ordering, please state specifically the class of manufacturers desired.

Address: INVENTIVE AGE Pub. Co., Dept. M. 918 F. St., Washington, D. C.

Every subscriber when sending \$1.00 is entitled to a free advertisement, not exceeding five lines, of any patent in which he may be interested. The ad. will be inserted three times.

THE INVENTIVE AGE PUBLISHING CO., Washington, D. C.

I herewith enclose \$1.00 for one year's subscription to

"THE INVENTIVE AGE."

I also enclose ad. for insertion in the (Patents for Sale*) (Want*) column of your paper.

NAME.....

P. O.

STATE.....

*Please indicate in which column you want the ad. inserted.

N. B.—Remit in the way most convenient.

Inventive Age

Established 1889.

Published monthly by

THE INVENTIVE AGE PUBLISHING CO.,

National Union Building, 618 F Street, N. W.,

WASHINGTON, D. C.

THE INVENTIVE AGE is sent, postage prepaid, to any address in the United States, Canada, Mexico, Hawaii, and Porto Rico, for ONE DOLLAR a year; to any other country, postage prepaid, ONE DOLLAR AND TWENTY-FIVE CENTS.

Correspondence with inventors, mechanics, patentees, and manufacturers, is invited. The columns of this journal are open for the discussion of such subjects as are of general interest to its readers.

Technical matter is particularly desired. We want practical information from practical men.

THE INVENTIVE AGE is independent.

Special facilities for furnishing cuts of any patented device together with descriptive article. Business specials 10 cents a line each insertion; 7 words to the line. No advertisement less than 25 cents.

Address all communications to

THE INVENTIVE AGE PUBLISHING COMPANY,

WASHINGTON, D. C.

Entered at the Post-office as 2nd class matter.

WASHINGTON, D. C., MAY, 1914.

JUDICIAL FAMILIES.

SOME OF THE FAULTS OF COURT PRACTICE

There is pending before the Judiciary Committee of the House of Representatives a bill to authorize the Supreme Court of the United States to prescribe forms and rules of procedure for federal courts on the common law side. On November 4, 1912, the Supreme Court promulgated rules of practice for the courts of equity of the United States, and they went into effect Feb. 1, 1913. While it is possibly too early to determine the wisdom of the changes in the equity rules, we believe that it is the consensus of opinion among patent lawyers that they have failed to accomplish the results intended by the Supreme Court, so far as patent cases are concerned. The purpose of the bill before Congress is to bring the rules for the courts of law in harmony with the courts of equity.

Hearings have been had before the Committee, and former President Taft appeared before the Committee in his capacity as president of the American Bar Association. While opposed to electing judges, Mr. Taft said that one of the objections to life appointments for judges was the temptation of the courts to build up about themselves "judicial families." Lawyers knew, he said, that it was often a dangerous thing to make any charge against a court clerk before the judge who had appointed him. The judges holding places for life and having a considerable amount of patronage in the way of clerkships, receiverships, and the like at their disposal, are under the temptation in making these appointments to allow personal relationship

to have too large an influence as against the concern of litigants and the public.

There is widespread belief that favoritism and oftentimes injustice follows from this fact. The patronage that courts control is more extensive than most people realize. More than that, the control is more nearly absolute. Mr. Taft suggested that some federal authority, possibly the Interstate Commerce Commission, ought to have a part in the selection of receivers appointed in federal courts: perhaps the appointments should be made from lists prepared by such Commission. This might not be at all workable in detail, but the suggestion brings into view another of the evils of the present judicial patronage. Receiverships are notoriously fat pickings, and they have too often been appointed with reference to putting the friends of the court in the way of the fees rather than with the single thought of securing the best service. This is not right, and its continuance should be made impossible, whether by the plan proposed by Mr. Taft or some other.

We have in mind the experience of a well known attorney before one of the eastern courts. In that particular court the clerk had always selected the stenographer to take down the testimony, and made it a point to add enough to the stenographer's bill to allow a fee for himself. The attorney decided that he would not stand for what he considered "graft," so he employed a stenographer on the outside and insisted on having him come into the court to take down the testimony. The clerk refused to allow him to appear. The attorney was a fighter, and determined that he would find out if the court approved of such practice. He brought the matter to the attention of the court, and being compelled to render a decision, the judge was obliged to decide in favor of the attorney, and he allowed the stenographer to report the testimony. Whether or not the court was influenced in his later decision of the case by the action of the attorney does not appear.

Any one in attendance upon a Federal court is struck with the fact that there are three men present who are practically doing nothing: the clerk, the bailiff, and the crier. It has always seemed to us that one of these worthy officials might well spend his time in performing some useful duty. Why should not the crier of the court be a stenographer as well, and after he is through opening the court, if it is deemed necessary that the court should be opened by a crier, then have him proceed to take down the depositions as a stenographer.

Quite recently we had presented to our attention a case which shows the costs to litigants of stenographer's bills. In a patent case both parties wanted the testimony taken in open court to be reported. A stenographer was selected. Each party was to pay half the charge of the stenographer. The bill

amounted to several hundred dollars for just four days reporting. Why should the litigants be required to pay this charge? Why should not the government have a court stenographer present and prepared to do the required work? It may be necessary to charge a small fee and assess the cost of such service on the losing party, but under such a practice, reporting a trial would not cost several hundred dollars.

In the matter of the great expense of receiverships, the courts are clearly blamable and the practice should be radically revised. A receiver is appointed usually when partners cannot get along together and are unable to come to any agreement, and the business must be wound up, or when a person or company engaged in business has failed. It would seem that under such conditions the court should protect the unfortunate parties by extending to them every relief, but as every one knows, the appointment of a receiver spells the ruination of the business, and the interests of those tied up in the business. A case was recently brought to our attention which illustrates this. A firm was engaged in the stationery business, and it was found necessary to dissolve the partnership. The parties could not, or would not, agree upon any terms of sale, and as a result, intervention of the court was asked, and a receiver appointed. What followed is well known to every one who has had any experience in such matters. The receiver, a lawyer, who knew nothing about the stationery business, appointed a ten dollar a week cashier to take in the receipts, and was permitted by the court to charge ten per cent of the gross receipts, in addition to his regular fees. The lawyer succeeded in clearing up in a few weeks time, spending less than an hour of his own time in the store each day, over \$6,000; in other words, the lawyer received \$6,000 which the members of the firm would have had if they had settled up the business themselves.

We do not understand why such a large commission should be allowed to a receiver. In the instance cited, the lawyer knew nothing about the stationery business, and spent no time there in managing the business, and practically all he did was to gather in, through his appointed cashier, the profits of the business. Instead of allowing the receiver a commission, he should have been simply paid a modest fee for such services as he rendered.

It is through receiverships that courts reward their friends and relatives. The practice of equity courts should be changed so that the appointment of a receiver will not be so heavy a tax on the parties involved. It would certainly seem that where a business demands the appointment of a receiver, the court should be more considerate of the interests of the parties, and not allow a big fee and commission to the receiver. It is one of the crying abuses of the equity practice, but since the lawyers profit by it, no one seems willing to take any action to correct the evil. When a lawyer like Senator Root

declares that the man of small means soon becomes discouraged or even ruined in litigation while men of wealth obtain immunity from being brought to justice, it would seem that the time has arrived for some action to be taken by Congress to bring about a radical change in the present practice of the courts.

PROPOSED REDUCTION OF FEES IN DESIGN PATENTS.

Under the present law, designs patents may be granted for any one of three terms; namely, three and one-half years, seven years and fourteen years. The government fees are respectively, \$10, \$15 and \$30. The present Commissioner has already rendered a decision which allows an applicant to apply for a short-term patent, and then before the allowance of the application, to change the application into a long-term patent. Last year there were 2,000 applications for design patent made. The Commissioner in his annual report to Congress made a very important recommendation:

"The present method of protecting designs is cumbersome and so costly that designers make little use of it. The problems of a court in passing upon the validity and infringement of design patents are so simple, generally speaking, as not to require the assistance of expert opinion. Little or nothing, therefore, is gained by examination prior to the granting of a patent. It is recommended that protection of designs be put upon a registration basis, and the fees be greatly reduced."

The design patent law should be amended as proposed by the Commissioner. It does not require the assistance of an expert to inform a court on the question of infringement of a design patent. The examination as to the novelty of a design made by the Patent Office is of little value. Eliminate the examination and the fees could be reduced to five or ten dollars. There should be no difference in the term. Seven or nine years is long enough for a design patent, and a fee of between five and ten dollars would be ample to cover the expenses of the Patent Office in attending to the application and issuing the patent. This would stimulate the protection of new designs, and would result in a great increase in the number of design applications. It is hoped that this recommendation of the Commissioner may be enacted into law at the present session of Congress, and it will be if there is an earnest effort made to bring it about.

THE INVENTIVE AGE contains sound advice to inventors and patentees. For lack of such advice many have lost money. Subscription price, one dollar a year.

MAKING MONEY OUT OF PATENTS.

To invent a successful device is one thing; to make money out of it, another, says a writer in *The Outlook*. It is no easy matter to sell an invention that means a change in a time-honored way of manufacturing bedposts or of boiling eggs. The man who invented the vacuum cleaner had to fight rusty household conservatism that found the old broom "good enough." Try and kick up something new and you are bound to stub your toe against the brick concealed beneath the high hat of prejudice. Steam coaches ran successfully in England in 1824. Parliament passed the "Road Locomotive Act," decreeing that a man with a red flag must precede a motor-driven vehicle and prohibiting a speed greater than four miles an hour. Thus the automobile was ditched for more than half a century. There are men still alive who can remember the derision that greeted the proposals to telegraph across the Atlantic and to build ships of iron. It took a Niagara of advertising to convince us that a piano could be acceptably played with air instead of flexible fingers trained for years; that a watch costing only a dollar would actually keep time; that a safety razor would mow chin bristles. It takes as much ingenuity to market an invention as to create it.

Just how that ingenuity shall be exercised depends much upon the character of the invention. A loom that costs \$20,000 to manufacture cannot be sold as if it were a breakfast food. There may be only fifty possible buyers in the whole country, and of these perhaps not ten could write a check for the purchase price.

That situation is encountered time and time again. It was encountered, for example, during the building of the Chicago Drainage Canal. Contractors who bid on rock excavation were told that their tenders must not exceed eighty cents a cubic yard. Rock had never been excavated before at that price under the same conditions. The apparently impossible could be accomplished by a combination of two inventions—the cableway and the cantilever, later used with success at Panama. Of these the cantilever cost \$28,000. Few contractors could afford to pay that sum. Accordingly the manufacturer leased the machine, with the result that contractors ultimately excavated rock at fifty-six cents a cubic yard; the State of Illinois saved \$5,000,000 and the manufacturer made more out of his machines than if he had sold them outright.

Leasing is probably the most approved business method of placing a complicated machine on the market. The most important machines used in shoe manufacturing are welters and stitchers. These are leased and never sold—leased, moreover, on such conditions that the welter may not be used with a competing stitcher, nor the stitcher with a competing welter. Nearly six cents for every pair of shoes made by these machines is paid by shoe manufacturers in royalties.

Such tying clauses in leases were invented long before the modern trust was conceived, and their legality is now being subjected to judicial scrutiny under the Sherman law.

In the testimony taken in the now famous "Dick-Henry case" we learned of still another method of marketing patented machinery, a method which consists in selling a device at less than cost and compelling the purchaser to buy from the manufacturer whatever supplies may be necessary to operate the device. If supplies bought in the open market are used, the patent is infringed, because the inventor or his assignee has the exclusive constitutional right to use the machine in any way that he himself sees fit and has permitted the purchaser to use the machine only in a certain prescribed way. So the courts have held time and time again in cases decided long before Dick vs. Henry aroused comment. Few inventors have ever grown rich by reason of the royalties that have been paid to them. To make a fortune out of a new tool or new folding-bed the inventor must become a manufacturer. Even Edison would not be a wealthy man to-day if he had sold his more important inventions instead of manufacturing them himself. His method is that adopted by most knowing patentees. The presses used in the Government's mints for coining metals are produced and sold by their inventor, Oberlin Smith. In Pawtucket, Rhode Island, is a prosperous plant built by the two inventors of successful metal-shaving machinery. The instruments used in telephone central stations to record the duration of a conversation were invented by a man who is president of the company by which they are made.

None of these inventions was ever introduced in its initial form. Whether it be a collar button or a locomotive, a battleship or a tin whistle, an invention never leaps out of the Jovian head of the inventor a perfect mechanical Minerva. Its fruition is often a process of years. The first telephone produced by Alexander Graham Bell could hardly transmit speech. Years of patient laboratory work and millions in money were expended in developing a system of communication that will handle a million and a half calls a day in New York alone; that will enable an operator to connect two subscribers in a city in less than fifteen seconds; and that has made it possible to talk more than two-thirds of the way across the North American continent.

The telephone seemed so unpromising in 1877 that the Western Union Telegraph Co., refused Bell's offer of \$100,000 for his patents. A newspaper editor, Frederick Gower, who had a contract now worth millions for the exclusive use of the telephone in New England, gladly exchanged his contract rights with Mr. Gardiner Hubbard, the financial backer of the first telephone company, for the exclusive privilege of lecturing on the telephone for the whole United States. He had that right without asking for it.

In a patent-infringement suit involv-

ing the Mergenthaler linotype the brilliant Judge Coxe went out of his way to comment on the crudity of epoch-making inventions and the systematic improvements necessary before they could be commercially introduced. Not only was the Morse telegraph a fit subject for a museum within a few months after its first feeble success, but the Howe sewing machine, he announced from the bench, could not be successfully used by any woman for ten years after the patent was granted. Yet both Morse and Howe are deservedly regarded as great American inventors.

It took ten years to produce a press on which the colored covers of our magazines could be printed at one operation. Colored reproductions of paintings are usually made by printing three or four colors, one after another, the paper being allowed to dry after each printing. With the rotary multi-color press, white paper is fed at one end, and emerges at the other completely printed. Such presses had been used for very rough work, but were utterly unadapted in their original form for fine magazine-cover printing. The most skillful pressman and engraver in the United States was engaged to solve the basic problem of preparing printing plates so that no "make-ready," as it is called in the trade, would be necessary. By 1901 a self-printing plate had been invented. Next came the problem of bringing it to commercial perfection—a problem that involved three years of patient, expensive, heart breaking experimenting. A special hydraulic press had to be built, and other special machines as the experiments called for them. Then it was discovered that the press was not strong enough. An entirely new one had to be designed and constructed. Next it was found that the idea of printing one wet color upon another was impracticable with the printing inks on the market. An ink chemist was employed, who spent over a year in the unsuccessful effort to produce inks of the desired character. After he failed, a practical printing ink maker was engaged, who finally succeeded after many months. Even though the process, the press, and the inks seemed perfect, no satisfactory results could be obtained. It was discovered that the arrangement of the printing cylinders was at fault. Because they were arranged vertically, so that the lowest one was near the floor and the uppermost one near the ceiling, they were subjected to different degrees of temperature, which affected the working of the inks. A new press had to be designed and built with horizontal cylinders, all lying in the same zone of temperature, and then, at last, success was assured—but only success in solving the problem of printing several colors at one operation. The problem of selling the press had not even been attacked.

The manufacturer found it difficult to interest publishers and printers in his method of printing four-color magazine covers at one operation. They came and watched the press, marveled at its performances, but did nothing. They refused to believe their

own eyes. In sheer desperation he had to install the press at his own expense in a large publishing house. Even then the machine ran every day for nine months before the publisher was really convinced that it would do his work.

The same story is repeated over and over again even with insignificant toys, hardware novelties, tools and the like. A half dozen patented safety razors are at present competing on the market. The perfection of each has cost a king's ransom. On one the sum of \$2,000,000 is said to have been spent to make it marketable, and as yet without avail. Few patentable inventions have been brought to a marketable condition in less than ten years, and no invention is ever made exactly in the form described in the patent. It seems no astounding feat to apply ball bearings to a carpet sweeper, so that the machine can be pushed over the floor easily. Yet that rather simple improvement meant thirteen years of inventive effort on the part of a manufacturer. About \$51,000 in money and six years in time were spent in devising a watch that would keep time and could be sold for a dollar. The smallest practicable typewriter on the market made its appearance only after an outlay of \$400,000.

It is curious how many inventors are not academically trained engineers or mechanics. Apparently, if you would invent a telephone, you must not be an electrician, but a teacher of deaf-mutes, like Bell. If you would devise a telegraph, you might emulate Morse in portrait painting. If you would enrich the world with a phonograph, a moving picture machine, an incandescent electric light, and 900 other inventions, you must begin like Edison by selling newspapers on trains and picking up your electricity, your chemistry and your mechanics as best you can.

Oil on Troubled Waters.

When the oil steamer *Narragansett* came to the aid of the burning liner *Volturno* and by pouring oil on the raging waters made possible the rescue of passengers and crew, interest was again directed to the important part this simple expedient may play in life-saving. Few people have a clear conception of the almost miraculous effect a small amount of oil has on wave motion. A drop of oil, says *Popular Mechanics*, will spread itself over seven square feet of water, and nine pints of oil are sufficient to cover a square mile of sea surface. The oil film has effect when it is of the thinness of one fifty millionth of an inch. The statement is made by the British Board of Trade that on free waves, that is, in deep water, the effect is greatest. In surf or where waves are breaking over a bar the effect of oil is uncertain. The heaviest and thickest oils are the best. All animal and vegetable oils have very great effect. Oil may be poured over the side of the vessel, may be thrown far ahead by means of a projectile filled with the same, or a buoy may be anchored in any desired spot from which oil is released when necessary by means of valves operated from shore.

A CLASSIFIED list of Patents issued during the month appears in each issue of the INVENTIVE AGE. This keeps inventors and manufacturers posted in the art in which they are most interested.—We will send, postpaid, to any address, printed copies of any U. S. patent, with specifications and drawings, upon receipt of 10 cents per copy.—Please give correct data in ordering.—Address,

THE INVENTIVE AGE PUBLISHING CO., 918 F St., N. W., Washington, D. C.

LIST OF PATENTS

ISSUED JANUARY 20, 1914.

MECHANICAL PATENTS.

Accounting device.....W. J. Crumpton
Accounting device, Automatic time.....
.....A. A. Thomas
Accounting device, Automatic time.....
.....L. A. Williams
Accounting means.....C. H. Tallmadge
Accounting means and method.....
.....C. H. Tallmadge
Accounting means and method.....L. A. Williams
Accounting mechanism.....C. H. Tallmadge
Accounting registers, Actuating mechanism
for.....F. O. Heuser
Accounting system (3 pats.).....W. J. Crumpton
Accounting system (2 pats.).....A. F. Poole
Accounting system.....C. H. Tallmadge
Accounting system (2 pats.).....L. A. Williams
Accounting system, Automatic.....
.....W. J. Crumpton
Accounting system, Piecework.....
.....C. H. Tallmadge
Accounting system, Wage and job.....
.....F. O. Heuser
Acetylene generator.....J. A. Bouillon
Acetylene generator.....P. Cheraz
Acid, Manufacturing phosphoric.....M. Haff
Actuating mechanism.....V. Frank
Adjusting mechanism.....B. M. W. Hanson
Advertising device.....H. J. Keating
Aerial machine.....A. A. Wyckoff
Aerial machine.....H. B. Lister
Aerial motor vehicle.....H. B. Lister
Aeronautical machine.....A. F. J. Dentre
Aeroplane control mechanism.....R. Tampier
Aeroplane-landing device.....J. T. Amiss
Air-brake coupling, Automatic.....D. R. Nugen
Airsips, Speed and direction indicator for
.....M. Vaniman
Anchor, Ground.....B. W. P. Coghlin
Antislipping device.....H. J. Otis
Ange attachment, Post.....P. Fruch
Automobile horn.....V. E. Tollefson
Automobile sleigh.....W. J. Wright et al.
Automobile steering gear.....W. A. Campbell
Automobile steering wheels, Warning
device for.....F. E. McCrory
Automobiles, Transmission shaft for.....
.....W. E. Trufant
Bag-filling and tying machine.....C. Heinzen
Baking pan.....A. Cohn
Baler, Hay.....B. A. Hilliard
Bed bottom, Spring.....G. A. Mellon
Bell, Sleigh.....C. B. Wanamaker
Belt, Link brake.....J. Dupuis
Berry rake.....E. D. Leighton
Beverages, Manufacture of non-alcoholic.....
.....C. R. Wagner
Billiard cushion.....M. J. Whelan
Blouse.....M. Handelsman
Boats on ships and for launching same
therefrom, System and apparatus for car-
rying life and other.....H. Hawthorn
Boiler-cap seats, Dresser for.....S. Dieseth
Boiler furnace, Steam.....G. S. Gallagher
Boilers, Self-regulating water feeder for.....
.....A. Pinacchiotti
Bolster spring.....H. Sundby
Book, Indexed.....R. H. Tyler
Book, Manifold.....W. G. Born
Book, Manifolding sales.....G. L. Mickel
Booster regulation.....C. Ambruster et al.
Boots and shoes, Making.....W. B. Arnold
Bottle, Non-refillable.....W. F. McKay
Bottle, Non-refillable.....L. S. Stiles
Brace.....S. R. Still
Brake mechanism.....W. P. Collins
Brake mechanism.....W. P. Collins
Brake-slack adjuster.....C. O. Anderson
Broom attachment.....J. Steine
Brush, Hair.....G. R. Christel
Brush holder, Tooth.....P. H. Roberts
Brush, Tooth.....L. F. Bowman
Bucket, Excavating.....J. W. Porter
Building construction.....G. Rosenleaf
Burglar-proof key.....H. O. Johnson
Butt-chain block.....J. W. Card
Cabinet.....J. J. Dupree
Cabinet, Paper-towel.....J. Antone
Cables and circuits, Localizing faults in.....
.....J. H. J. A. Stephenson
Camera.....H. T. Wing
Cam closure.....W. U. Harris
Canal, Drying.....L. Jungels
Capsules, Forming wafer.....W. Ohliger
Car-bodies, Cushioning device for indepen-
dently movable.....W. P. Bettendorf
Car-door-operating mechanism (2 pats.).....
.....G. C. Cherbonnier
Car doors, Weather-strip device for.....
.....F. Mathews
Car, Dump.....A. R. Chambers
Car loader, Box.....J. M. Christy
Car, Railway.....F. J. McNulty
Car, Railway.....F. X. Mudd
Car roof.....L. T. Canfield
Car-roof construction.....F. Jager
Car-window moving and holding arrange-
ment.....A. Kurth
Cars, Vapor heating system for railway.....
.....E. H. Gold
Carburetor.....W. A. Cahill
Carburetor.....E. Nice
Carburetor.....H. Austin
Carpet cleaner.....H. B. Newton
Carriage-boot attachment.....F. E. Yarian
Carrier (2 pats.).....P. K. Musselman
Cash till.....S. Chiger
Casket handle.....E. R. Sargent
Casters, Roller for.....L. S. Lachman

Chain support.....W. H. Murray
Clamp.....W. Schroeder
Clamping device.....S. C. Prosser
Cleaving slate blocks and the like, Machine
for.....C. Sndre
Clocks, Lighting attachment for alarm.....
.....A. T. Britt
Coal washer.....S. Stepanian
Coffin-lowering device.....H. H. and E. B. Rardon
Collars, Adjustable pad for horse.....
.....C. D. McMillan
Combination lock.....J. Stor, Jr.
Composing machine, Typographical.....
.....H. Degener
Concrete lumber, Hollow reinforced.....
.....J. Hickson
Container, Liquid.....A. M. Clark
Container member.....I. Naylor et al.
Coop, Poultry.....E. E. Arnold
Corn-heading knife, Kafir.....J. A. Morris
Corner-staying machines, Automatic stop-
ping mechanism for.....E. L. Hazel et al.
Cornet.....P. F. Petersen
Cot, bunk, couch, and the like for use on
board ship, Self-leveling.....A. L. Wertheim
Counterbalancing device.....B. M. W. Hanson et al.
Coupling pins, Device for manipulating.....
.....F. Mathews
Cow-tie lock.....J. W. Muller
Crate.....E. F. Ribbeck
Cream tester.....C. D., S. B. and H. H. Katterheuerich et al.
Cultivator.....C. H. Schenck
Cultivators and weeder, Brush drum for.....
.....P. A. Wheelock
Currycomb.....G. B. Prouty et al.
Curtain holder.....C. P. James
Cutting and dicing device (2 pats.).....
.....F. W. Burpee
Cycle frame, Motor.....G. H. Meiser
Damper-operating means.....P. Becker
Dead centers, Device for overcoming.....
.....A. T. Peterson
Dental mallet and plunger.....W. G. Thomas
Dericarving machine.....R. G. Swanson
Despatch system, Carrier.....F. L. Soule
Die holder.....C. Hall
Digging machine, Ditch.....G. H. Giesmann
Directories, &c., Device for viewing and
magnifying lines in telephone and other
.....J. Q. Adams
Dispensing and measuring apparatus.....
.....C. P. Carroll
Diving apparatus for submarine work.....
.....M. Bembina et al.
Door check.....B. Downey
Door closer and check.....H. G. Voight
Door-controlling means, Multiple-section
sliding (2 pats.).....H. G. Voight
Door-controlling means, Multiple-sliding.....
.....H. G. Voight
Door hanger.....L. T. Weiss, Jr.
Door lock.....H. L. Speicher
Doubletree.....M. Buck
Draft attachment, Spring.....J. W. Hartley
Drying apparatus.....J. C. Breuer
Drying system (Reissue).....C. R. Walker
Drum covers, Retaining ring for.....
.....C. B. Wanamaker
Egg case or carrier.....J. A. Hilliker
Egg receptacle and carrier.....R. M. Odell
Electric alarm.....A. Hoge
Electric cut-out.....A. V. A. McIlroy
Electric generator, Magneto.....M. C. Brenot
Electric ground clamp.....R. R. Forbes
Electric heating table or counter.....E. C. Cary
Electric ignition plug.....A. Mazellier
Electric machine, Dynamo.....J. L. Woodbridge
Electric meter.....G. M. Willis
Electric primer.....C. P. Lindsay
Electrical appliance.....J. H. Lehman
Electrical connection.....J. C. Stearns
Electrical distribution system.....J. L. Woodbridge
Electrical distribution system.....R. C. Hull
Elevator lock.....L. P. Winner
Elevator safety appliance.....J. A. Butkus
Embossed surfaces, Producing.....
.....W. L. Jacobs et al.
Embroidering machines, Shuttle mechanism
for.....M. Schoenfeld
Engine-igniting device, Internal-combustion.....
.....J. G. Newman
Engine muffler.....E. Holzwarth
Envelope.....E. N. Todd
Farm gate.....W. F. Donnell
Faucet casing.....L. E. Wright
Feed and hay rack, Combined.....W. Eckelberg
Fence post.....A. B. Camden
Fence-stretching clamp, Wire.....H. H. Jeter
Filament, Zirconium lamp.....C. A. Hansen
File, Paper.....W. Bodlaender
Filter.....A. Sullivan
Filter press.....G. Pistor et al.
Fire escape.....W. F. Hajek
Fire escape, Portable.....L. Dan
Fire extinguisher.....F. Joswich
Fire extinguisher.....P. B. Barunger
Firearm.....C. D. Wilson
Flat-iron cooler.....H. Schwartz
Fluid brake, Automatic.....L. H. Albers
Fluid-lifting apparatus.....P. J. O'Neill
Flushing device.....C. W. Darrow
Fly trap.....N. Libison
Flying machine.....B. C. H. Greaves
Folding chair.....F. C. Pierce
Fuel, Means for atomizing.....A. Willmer
Furnace.....W. Anderson et al.
Furnaces, Gas port for regenerative.....
.....A. Wood 3rd
Fuse plug.....T. E. Murray
Game apparatus.....P. L. Elliott
Garment.....K. Shakofsky
Garment retainer.....F. D. Cotner
Gas, Carbonizing and superheating.....A. Berglof

Gas cut-off, Automatic.....G. S. K. Swift
Gas generator, Acetylene.....W. Banwarth
Gas generator, Acetylene.....R. L. Beck
Gas regulator.....C. Barrington, Jr.
Gases and vapors, Apparatus for compress-
ing.....G. Holzappel
Gasoline motor.....J. E. Stevens
Gate attachment, Farm.....W. B. Terry
Gearing for motor vehicles, Transmission.....
.....J. S. Peters
Glass cylinders, Drawing.....A. E. Spinasse
Governors, Attachment for centrifugal.....
.....W. L. Wayrynen
Grain drier.....L. J. Dennis
Grain-saving device.....B. G. Nelson
Gun.....R. Demele
Hackling machine, Automatic.....J. A. McKee
Hair curler.....B. L. Woodward
Hair waver.....T. Grosert
Hammer, Fluid-power.....J. Nazel et al.
Hammer, Power-driver.....J. A. Monroe
Hammer, Pile.....R. E. Bates
Handbills and the like, Device for scatter-
ing.....H. Hunerkopf
Harvester reel.....F. M. Baker
Hat fastener.....A. O. Sethman
Head gate.....P. H. Genter
Head gear, Perspiration band for.....
.....C. Alexander
Headlight and signal, Combined.....J. Stoddard
Heels of boots and shoes, Machine for bur-
nishing and finishing the.....C. A. Matson
Heels of boots or shoes, Wheel for finish-
ing.....C. A. Matson
Hinge.....R. D. King
Hinge, Gate.....R. T. Van Valkenburg
Hoisting mechanism, Ammunition.....
.....J. F. Meigs et al.
Hook and eye.....C. A. Ford
Horseshoe blank.....H. E. Turner
Hose support, Garden.....F. W. Haines
Hose supporter.....A. H. Cohn
Hot-water-circulating boiler.....W. Kane
Hug guard.....J. Hellman
Ice can.....J. W. Orr
Ice rest and water cooler (Reissue).....
.....W. F. Keyes
Igniting device.....W. B. Goodwin
Ignition systems, Testing device for jump
spark.....T. H. Estes
Index.....F. C. Sheldon
Injection apparatus, Intravenous.....J. L. Owens
Injector.....L. Kassander
Insect trap, Electric.....S. A. Craig
Insulating door.....G. D. Antrim
Internal-combustion motor.....R. H. and J. Morrow
Kinematographic apparatus, Mechanism for
intermittently advancing the film in.....
.....L. Gannout
Knitting machine needle-controlling trans-
fer means.....J. H. Zens
Label strips, Feeding and cutting device
for.....M. H. Ballard
Ladle for molten metal.....S. T. Wellman
Lamp-cord reel.....M. I. Randall
Lamp, Hand.....C. F. Burgess
Lamp reflector.....J. C. Stearns
Lamps, Igniters for miners'.....
.....L. D. Vaughn et al.
Lap-link loggerhead hook.....J. T. Walker et al.
Last-testing tool.....E. Imhof et al.
Latch.....P. J. Wesolowski
Latch, Automatic door.....J. H. and W. O. Tate
Lawn sprinkler.....J. E. Bustin
Lawn sprinkler and nozzle, Combined.....
.....J. Byler
Level and plumb, Combination.....J. F. Carlson
Lid holder, Vessel.....J. N. Parkinson
Light-reflecting device.....E. C. McKinnie
Light screen for finders.....G. Geiger
Lighter.....J. D. Coughlin
Link, Fusible.....G. L. Rockwood
Linotype-magazine rack.....T. H. Knapp
Liquid-applying comb and the like.....F. C. Jones
Liquid container.....W. R. Leonard
Lixivating apparatus.....E. N. Trump
Loading and unloading device.....M. J. Gogarty
Loading device.....C. C. Hatfield
Lock.....J. B. Calvert
Locomotive equipment.....C. L. Bopp
Loom and like shuttles, Threading of.....
.....H. A. Murphy et al.
Loom shutter-feeler mechanism.....H. A. Davis
Lubricating device.....O. D. H. Bentley
Machinery guard.....W. J. Parkinson
Mail-bag catching and delivering appara-
tus.....S. Watson
Mail box and signal, Combined.....W. H. Mullins
Malt, Manufacturing.....J. von der Kummer
Measuring instruments, Shunt for.....
.....G. M. Willis
Meat-cutting machine.....P. Ganzhorn
Metal-reducing machine.....B. M. W. Hanson
Metal-refining furnace.....E. C. Wills
Metal-strap ends, Tool for joining.....
.....E. E. Flora et al.
Metal-working tool and tool holder.....A. Cousot
Mining machine cutter-head.....J. Tuck
Moistener, Stamp and envelope.....C. E. Carley
Motor controller, Electric.....J. H. Hall
Motors of automobiles and other vehicles,
Water-cooling apparatus for the explo-
sive-mixture-operating.....H. C. Colburn
Music-leaf turner.....W. M. Cramer
Nail shield.....J. M. Thorp
Naval tracer, Tactical.....F. Spalazzi
Nest, Automatic, hen's.....S. G. Oglesby
Nest, Hen's.....L. F. Reichardt
Net, Minnow.....A. D. Meagley
Nitrogen and making compounds there-
from, Obtaining.....T. L. Wilson et al.
Nose-bag support.....J. W. Wenger
Nut, Lock.....M. Haughey
Nut lock.....W. A. Kiper
Nut lock.....A. H. Wegener
Nut lock.....J. F. McGuire

Nut lock.....M. J. Fitzgerald
Nutless bolt.....C. A. Ford
Oil burner.....J. E. Greenwalt
Oilstone.....R. F. Deschenaux
Onion-topping machine.....C. P. Marsh
Operating table for swine.....G. Allen
Ores, Treating.....C. J. Best
Ornamenting with botanic specimens.....
.....W. E. Heeren
Oyster-opening machine.....C. D. Newman
Paint.....H. Howard
Paper box.....C. A. Ford
Paper for use in copying machines, Roll.....
.....A. D. Klaber
Paper-making machines, Dipper for driers
in.....J. W. Vedder
Paper rolls, Stripping spear for.....A. T. Wyant
Papering machine, Wall.....J. I. Richardson
Paraffin compositions, Expressing fluid
from.....J. Hausen
Pasting device, Wrapper.....J. J. Sleeper
Pedal operator.....J. C. Cake
Phonograph-stop device.....D. M. Winans
Picture-exhibition device.....S. H. Strong
Picture machines, Automatic control and
safety device for moving.....J. McFeely
Picture-projecting machine.....A. F. Victor
Pin.....J. Wood
Pipes, masts, pillars, and the like, Device
for tightening and reinforcing.....H. Siegwart
Piston.....E. A. Reeves
Plaster key.....C. B. Comstock
Plastic composition.....A. S. Quick
Plow.....W. N. Springer
Plow, Revolving.....J. Starriett
Plow, Shovel.....W. H. Morris
Pneumatic lock.....J. C. Messiek
Pocket clip and eraser holder, Combined.....
.....S. Gorson
Power factor in a system of distribution,
Maintaining a constant.....A. A. Tirrill
Press for making pipes.....F. Gahlin
Presses, Mechanism for.....F. E. Groover
Pressure intensifier, Variable.....F. Steinmann
Printing device.....J. S. Duncan
Printing-machine-operating attachment.....
.....C. F. Richardson
Printing slugs, Means for the production
of.....P. T. Dodge
Profiling machine.....B. M. W. Hanson et al.
Propeller, Rowboat.....J. Granquist
Pulp screens, Fastening device for.....
.....M. E. Hodgson
Pulverulent materials for molding or bri-
queting, Apparatus for preparing.....
.....E. B. A. and R. A. Zwayer
Pulverulent materials for molding or bri-
queting, Preparing.....E. B. A. and R. A. Zwayer
Pump.....O. W. Johnson
Pump, Balanced centrifugal.....C. Comstock
Pump, Centrifugal.....C. Comstock
Pump, Rotary jet.....G. Holzappel
Pump, Steam.....K. Dougan
Pump valve.....J. P. Matthews
Pumps, Automatic means for lubricating.....
.....W. Volker
Puzzle.....R. Lathrop
Radiator-controlling device.....
.....F. R. von Dormus et al.
Radio-active matter in thorium-containing
solutions, Obtaining.....F. Glaser
Rail brace.....R. Javorina
Rail-fastening to ties.....T. H. Elliott
Rail joint.....C. E. Goodrich
Rail joint.....G. W. Mims, Sr.
Rail joint, Insulated.....E. F. Schermerhorn
Rail-joint support.....G. H. Williams
Rail spike.....J. Kruttschnitt
Railway rail.....R. D. Moore
Railway signaling system.....W. J. Cook et al.
Railway signaling system.....J. D. Taylor
Railway switch.....S. A. Craig et al.
Railway switch.....J. W. Hubbard
Railway tie, Metal.....W. W. Mechling et al.
Railway track.....L. Brewster
Rake cleaner.....G. D. Van Zandt
Razor-blade holder for stropping purposes,
Safety.....E. B. White
Razor-stropping device, Safety.....P. Catucci
Receptacles with liquid, Apparatus for fill-
ing.....W. E. Pearson
Refrigerating machine.....J. Rebsamen
Register-actuating mechanism, Two-way.....
.....F. O. Heuser
Resin, Pot for collecting.....J. M. A. Brun et al.
Retort.....H. W. Webster
Road-surfacing machine.....V. V. Messer
Roll, Card-clothed.....B. C. Calderwood
Rolling-machine screen attachment.....
.....A. L. Lentz
Roofing implement.....J. N. Farnham
Rotary engine.....W. M. Hoffman
Rulers and the like, Self-guiding arrange-
ment for parallel.....S. Sandursky
Safe.....W. E. Arnold
Safes, Insulating lining for.....
.....O. H. L. Wernicke
Sanitary trap.....J. W. McAuliffe
Sash weight.....M. J. Fitzgerald
Saw, Band.....G. C. Hunter
Saw-tooth-resaping device.....D. M. Bowman
Scow, Unloading sand.....W. G. Mackie
Screw.....W. H. Lasater
Seam ripper.....L. Williams
Seat spring.....J. T. Wilcox
Seeder and planter, Endless-chain.....
.....F. Vojichoski
Selective apparatus.....G. H. Groce
Sewing machine.....A. R. Schoenky
Sewing machine thread-controlling means.....
.....C. H. T. Hagelstein
Shade fixture.....F. J. Behrle
Shade, Folding.....O. C. Steele
Shaving cup, Barber's aseptic.....
.....J. Lupowitz et al.
Shock absorber.....C. P. C. Bretschneider

- Ships, Means for removing coal and other foreign bodies from coal-bunker doors or other water-tight closures on..... G. Mazzolini
- Shoe..... R. D. S. Bennett
- Shutter holder..... A. D. Sorensen
- Sight illuminator..... E. Schwarz
- Signaling system..... C. E. Beach et al.
- Sink-trap cleaner..... M. Lunney
- Skirt, petticoat and the like..... V. Sablove
- Sled or sleigh..... E. E. Foster
- Sled or sleigh..... H. M. Oliver
- Smoke and heat protector for firemen..... M. Panian
- Soap dishes, Footpiece connection for..... G. M. Condit
- Solvent..... W. E. Masland
- Spark plug..... C. W. Beck
- Spark plug..... A. De Clairmont
- Spring wheel..... G. H. Schanek
- Spring wheel..... G. J. and H. C. Garrett
- Square, Try, rafter, and miter..... G. E. Stanwood et al.
- Stanchion..... J. B. Oleson
- Starter and ignition control..... J. B. Entz
- Steam boiler..... U. Beretta et al.
- Steam brake for single-truck log loaders..... J. A. Perego
- Stove attachment..... D. B. Bartel
- Stoves, ranges and the like, Lid for..... W. B. Evans
- Strands, Feed mechanism for..... A. R. Wiens
- Sugar bowl, Sanitary..... E. W. Sanderson
- Sugar-distributing bowl..... S. A. Addis
- Sugar, Machine for breaking and packaging blocks of..... A. Letort
- Sugar, Manufacturing refined..... M. Weinrich
- Sugar or cane-sugar syrup, Defecating raw cane..... M. Weinrich
- Suit, Sportsman's..... R. Lesselbaum
- Suspension device, Self-winding..... J. V. Genovese
- Telaugraphic apparatus..... G. S. Tiffany
- Telephone stand..... J. W. Rodes
- Telephones, Loud-speaking attachment for..... H. W. Prance
- Telephonic apparatus, Cover for..... G. H. Nash
- Telescopic sight..... W. V. Hukill
- Terminal construction..... A. L. Drum
- Thread cutter..... J. A. Dowd
- Tie plate, Adjustable..... J. Odien
- Tilling machine..... W. C. Zelle
- Tire..... C. M. Lloyd
- Tire-casing-repair device, Pneumatic..... J. N. Newsom
- Tire for vehicles and the like, Solid..... D. Maggiora
- Tire, Resilient..... D. H. Deery
- Tobacco pipe..... J. H. Roth
- Tongs, Weighing..... O. C. Ritz-Woller
- Tongue, Vehicle..... B. Claypool
- Toy building block..... P. Anft
- Toy gun..... J. R. Ballentine
- Track gauge..... P. M. Stավdal
- Transfer holder, Sanitary..... M. Lieberman
- Transmission mechanism..... W. B. Pearson et al.
- Transporting heavy loads by motor vehicles, System of..... T. Pescatore
- Trolley..... C. D. Larrabee
- Trolley wheel..... C. C. Williams et al.
- Troughs, Partition for feed..... H. J. Ferris
- Trousers presser..... W. T. Luckey
- Turbine..... F. Knourek
- Turbines and other motive-power devices, Apparatus for actuating and governing parts of gas..... H. H. Holzwarth
- Type-writer paper holder..... J. E. Molle
- Type-writing machine..... B. P. Fortin
- Type-writing machine..... J. C. McLaughlin
- Type-writing-machine ribbon mechanism..... L. C. Myers
- Umbrella support..... I. N. McCuddy
- Vacuum cleaner..... E. J. Feeny
- Vacuum cleaner..... R. R. Smith
- Valve..... P. W. Axtell
- Valve, Blow-off (2 pats.)..... L. J. Bordo
- Valve, Electric time-release air..... C. L. Bopp
- Valve mechanism..... J. Wilson
- Valve, Pressure-reducing..... F. L. Jahn
- Valve, Radiator..... W. G. Marsh
- Valve, Waste..... F. J. Torrance
- Vehicle brake..... A. J. Stettler
- Vehicle cushioned suspension..... W. L. L. Peltz
- Vehicle spring (Reissue)..... G. M. Huston
- Vehicle wheel..... E. T. Forrester
- Vehicle wheel, Resilient..... C. J. Malings
- Vessel, Sectional sea-going..... C. R. Steiner
- Vessel, Tank..... C. P. M. Jack
- Vise, Saw..... J. J. Shauls et al.
- Wagon reach..... S. A. Hall et al.
- Washington machine..... A. T. Loftsgaarden
- Watch, Pocket..... E. C. Pitch
- Weather strip..... F. Holdsworth
- Welding and cutting, Gas..... W. C. Bucknam
- Welding, Electric..... L. S. Lachman
- Welding machine, Spot..... E. Thomson
- Well-drilling machine..... A. C. Stewart
- Wheel..... C. Yoder
- Wheel..... P. G. Anderson
- Whiffletree attachment..... J. Lee
- Whistle or horn..... E. W. Schurman
- Window provision box..... E. von Vargyas et al.
- Baling device, Cotton..... W. D. Smith
- Ball mill..... C. L. Carman
- Barrel, Collapsible..... J. B. Crockett
- Beading, molding, and cutting machine..... G. L. Knights
- Bed and douche pan..... W. E. Cuning
- Bed, Folding..... J. M. Gardner
- Bedsteads, Means for moving..... A. Lawrence
- Belt, Bean-sorting..... O. Sutter
- Bicycle spring frame..... I. W. Goodwin
- Binder, Loose-leaf..... E. H. Elder
- Blackening stand, shoe..... W. T. Mahin
- Boiler cleaner..... E. H. Reiter
- Boiler-tube emergency tube..... A. T. Anderson
- Boilers, Sectional header for water-tube..... H. E. Boyrie
- Bolt-threading machine..... A. M. Harrington et al.
- Book..... E. S. Browne
- Book holder, Note..... F. Jepson
- Bottle..... F. Gade
- Bottle-capping machine..... E. A. Everett
- Bottle indicator..... P. Flynn
- Bottle, Non-refillable..... R. Fritz
- Bow-holding pin..... C. Dinuccio
- Box cover..... A. A. Arnold
- Box opener..... H. Bahlson
- Bracelet..... E. L. Anderson
- Braiding machine..... S. W. Wardwell
- Brake cylinders, Packing joint for..... D. H. Rene
- Brake device..... A. J. Adams
- Brake shoe..... G. S. Evans
- Brick kiln, Charging and discharging conveyer system for..... G. L. Bennett
- Brush, Liquid polishing..... G. L. Stanley
- Brush, Self-feeding paint..... J. Allen
- Brush, Shoe..... C. J. Boise
- Brush, Tooth..... F. H. Borst
- Buckle-retaining device for trousers..... I. C. Isaacs
- Building construction..... A. B. Coon et al.
- Bung bushing and closure for barrels..... C. F. Terney
- Bung, Metal..... E. J. Tackney
- Button-attaching machine, Bar..... F. R. White
- Button cleaner and polisher..... J. E. Cady, Jr.
- Button for doors, windows, &c..... F. T. Lund
- Cabinet catch..... H. A. Palmer
- Cabinet, Game-registering..... H. E. Schmidt et al.
- Calculating machine..... R. Pothig
- Calculating machine..... J. Forsheim et al.
- Can or box lifter..... A. J. Collier
- Can spout, Powder..... F. Hennaut
- Candy-wrapping machine..... E. C. Miller
- Cane..... A. D. Goetz
- Car-door mechanism..... R. V. Sage
- Car, Dump..... A. Campbell
- Car, Railway..... W. S. Atwood et al.
- Car roof..... H. Pries
- Car running board..... I. S. Downing
- Car stake (2 pats.)..... T. M. Schmitz
- Car, Street..... F. Hedley et al.
- Car, Street railway and other..... W. S. Menden
- Carbonator..... D. Erit
- Carbureter..... E. T. Russian et al.
- Carbureter, Bifuel..... G. F. Bischof
- Cartridge belt..... W. R. Lynch
- Cattle guard..... A. D. McColeman
- Centrifugal compressors, Discharge vanes for..... L. S. Loewenstein
- Centrifugal compressors, Means for preventing surging in..... S. A. Moss
- Chain link, Repair..... P. McCaul
- Characters, Apparatus for forming..... J. R. Hershey
- Checkrein connection, Separable..... R. F. Rumans
- Churn..... M. Higgins
- Cigar box..... J. G. Bauer
- Cigar, cigarette and match case, Combination..... A. G. Wormser
- Cistern..... G. H. Mahn
- Clamp..... J. R. Miller
- Clip..... F. B. King et al.
- Clock, Electric alarm..... F. Goss
- Clothes-line adjuster..... A. L. Flint
- Clothes washer..... E. Baldwin
- Coating composition, Protective..... L. H. Baekeland
- Coin-counting apparatus..... F. Prockl
- Collar, Horse..... J. F. Schoellkopf
- Collar, Horse..... H. C. Guttridge
- Color lake and making same..... A. Strupler
- Compasses..... G. Halvorsen et al.
- Concrete construction, Reinforced..... G. Kahn
- Concrete-mixing machine..... E. L. Cridge
- Condenser..... R. D. Tomlinson
- Continuous kiln for burning clayware..... L. N. Legg
- Conveyer..... A. Burgess et al.
- Cooking fruits and vegetables, Apparatus for..... J. B. Bailey
- Cop-winding machines, Feeler for..... H. Schweiter
- Copy holder..... L. G. Julihn et al.
- Core oven..... A. W. Moyer
- Corner head..... G. D. Clark
- Correlating a desired operation in a traveling carriage with the distance traveled, and for transmitting adjustments between traveling instruments, Means for..... A. W. Gattie et al.
- Corset, Boneless..... M. H. Gifford
- Coupling lifter holes, Spring cap for..... R. E. L. Janney
- Crank shafts, Damping torsional vibrations in..... F. W. Lanchester
- Cuff for shirts, Reversible attached..... O. J. Haabestad
- Cultivation shovel attachment, Tobacco..... R. Grinde
- Cultivators, Driving mechanism for motor-driven..... K. H. W. L. Seek
- Cut-off, Safety..... R. H. Cowdrey
- Cutting mechanism..... T. E. Raffel
- Cutting tool..... E. Marawske
- Davenport..... L. C. Phenix
- Dental face bows, Support for..... P. H. Brown
- Dental forceps..... R. L. Anderson
- Derriek for mines..... J. E. Jones
- Diffuser for producing a uniform jet of unlimited width..... F. C. Wickel
- Disinfecting device..... J. G. Cory
- Display apparatus..... K. Koike et al.
- Display frame..... P. Rappaport
- Door..... J. O'Brien et al.
- Door check..... F. Brucker
- Door-operating mechanism, Dump..... A. Campbell
- Dowel guide and holder..... R. Moe
- Draft device..... C. H. Melvin
- Drier..... F. K. Hoover et al.
- Drying apparatus..... M. R. Wild et al.
- Drill coupling..... P. C. Willis
- Drill support..... J. Kubat
- Drinking fountain..... H. L. and E. M. S. Fisher
- Drinking fountain..... C. Heer
- Dust collector and water trap..... C. H. Raab
- Dyestuffs, Preparing finely divided or colloid indigo..... A. Schmidt et al.
- Eaves-trough brace..... C. Peterson
- Educational device..... G. Dadd
- Electric-circuit-switching device..... M. Kallmann
- Electric-current-carrying conductors, Connector for..... H. Schroeder
- Electric currents, Apparatus for reducing..... R. J. Ward
- Electric ignition, Apparatus for..... G. Ifonold
- Electric machine, Dynamo..... F. H. Ford
- Electric machine, Dynamo..... T. S. Allen
- Electric machine, Dynamo..... R. B. Williamson
- Electric meter..... P. Rose
- Electric stations, Sectioning means for..... E. Brandenburg
- Electric switch..... F. Barr
- Electrical primer..... M. Hobe et al.
- Electromagnetic lock..... L. L. Ledue
- Embroidering machines, Take-up controlling means for..... R. Zahn
- Emulsion, Whey..... W. S. Downham
- Engine-reverse gear..... I. N. Mitchell
- Engine starter (Reissue)..... W. L. Stuller
- Engine-starting device..... S. I. Prescott
- Engine-starting device, Internal-combustion..... N. Choate
- Expansion-joint cushion..... W. R. Lonsdale
- Eyeglasses and the like..... G. W. Baker
- Feeder, Automatic stock..... S. Mendel
- Fence post..... M. Murray
- Fence post, Iron..... D. H. Smith
- Fender..... J. H. Ferguson
- Fender actuating and locking device..... W. S. Menden
- Fiber-decorating machine..... O. Sheehan
- Filling apparatus, Receptacle..... F. O. Hoagland
- Fire escape..... N. MacLeod
- Fire escape, Portable..... J. A. Irby
- Flax machine..... K. Wessel
- Floors, Producing sheet-metal forms for..... T. H. Kaue
- Fine-thimble protector..... V. Westerlund
- Fluids, Apparatus for indicating and recording the flow of..... T. R. Weymouth
- Flushing apparatus for submerged water pipes..... L. E. Smith
- Fly and insect catcher, Sanitary..... B. C. Hamilton
- Fly trap..... C. G. Overmyer
- Flying machine..... C. P. Jenkins
- Flying machines, &c., Controlling mechanism for..... G. H. Curtiss
- Folding box..... R. P. Brown
- Frames, Clamping device for stretching..... C. E. Clancy
- Fuel-heating and feeding system, Preliminary..... J. Reichenbach
- Fur for felting, Preparing..... E. Tweedy
- Furnace part, Metallurgical..... W. W. Case, Jr.
- Gage..... G. R. Lee
- Game..... G. Gings
- Game apparatus..... J. E. Watterson
- Garment hook..... W. J. Galt, Jr.
- Garment-supporter trimming..... E. N. Humphrey
- Gas generator, Acetylene..... A. M. Salazar
- Gas governor..... E. L. Holmes
- Gas heater..... E. C. Jones
- Gas-manufacturing apparatus, Wood..... R. M. Poole
- Gases, Method of and furnace for securing products of reaction by electric discharges in..... C. P. R. von Koch
- Gasket..... S. C. Bond
- Gear wheel..... H. Hess
- Glass..... R. G. Kann
- Governing mechanism..... B. Kramer
- Governing mechanism for prime movers and auxiliaries..... R. F. Halliwell
- Grain drill, Single-disk..... C. B. Dempster et al.
- Graphic recorder..... C. B. Thwing
- Grease cup..... P. D. Philp
- Grinding machine, Shell..... F. Di Gianni
- Grooves, Machine for cutting dovetail..... W. G. Strozier
- Gun carriage (2 pats.)..... E. Schneider
- Gymnastic apparatus..... C. G. Rosenberger
- Hair pin, Safety..... J. Kotner
- Handsaw..... C. H. Shapiro
- Harmonic player for keyboard instruments..... J. A. Koch
- Harness device..... A. L. Lillev
- Harrow, Revolving tooth..... J. O. Wolf
- Harrow weeder-tooth..... C. E. Roosevelt
- Harvester-binder reel..... C. W. Riley et al.
- Harvesters, Tandem draft connection for..... L. A. Thomas
- Hat-pin guard..... P. Degner
- Hats, Manufacture of felt..... A. B. Waring
- Hatch-operating mechanism..... H. B. Hills
- Header..... H. M. Fletcher
- Headlight, Locomotive..... E. H. Marshall
- Heating apparatus..... J. M. W. Kitchen
- Heating device..... D. H. Leas et al.
- Heel-building machine..... A. Geiger
- Heel, Safe-deposit shoe..... H. W. Halley
- Hoe-handle seed-dropping attachment..... F. A. Meadows
- Holddown..... L. M. Brown
- Hollogical instrument..... F. J. Horstman
- Horse overshoe..... R. Whitaker
- Hose nozzle..... H. Gibbs
- Hot-air conveyer or stack, Double-wall..... A. G. Scherer
- Hub..... H. W. Sanford
- Hub, Resilient..... J. Melville
- Hydrogen, Apparatus for generating and carbureting..... C. V. Stuart
- Ice-cream-freezer holder..... F. I. Toepperwein
- Incubator..... C. Beville
- Ink-pad box..... C. Ambruster
- Ink wells, Pen cleaner for..... J. L. Diven
- Insect trap..... F. J. Gabal
- Insulating compound..... L. E. Barringer
- Internal-combustion engine..... G. A. F. Ahlberg
- Iron, Pile-planking of rolled (2 pats.)..... P. Schiller
- Ironing boards, Stretching device for..... W. Bartholomew
- Joint structure..... J. Prash, Sr., et al.
- Kafir and cane header..... C. E. Karnes
- Knob-fastening..... H. B. Collins
- Labels or tags to articles for the laundry, &c., Machine for applying..... J. French
- Lace curtains and like material, Machine for folding..... A. Burgess et al.
- Ladder, Folding extension..... L. O. Garraway
- Lamp..... T. O'Brien
- Lamp-adjusting mechanism..... J. Kochanowski
- Lamp and attaching means therefor..... J. G. von Jensen
- Lamp, Portable electric..... W. A. McKay et al.
- Lamp-supporting (2 pats.)..... C. F. Massey
- Lamp, Vehicle..... S. E. Novotny et al.
- Lap ring..... E. Buniff
- Lap robe fastener..... F. P. Treacy
- Lasting machine..... E. I. La Chapelle
- Latch for automobile doors..... R. Ochsner
- Latch, Locking..... H. A. Palmer
- Lathe..... E. J. McClellan
- Leakage indicator and connections..... E. B. Wedmore
- Legging..... M. Jacob
- Letter..... W. H. Beck
- Level, Carpenter's..... F. W. Kalsow
- Level, Plumb..... C. C. Rutledge
- Life-saving suit..... J. Judasz
- Light-reflecting apparatus..... D. C. Shoberg
- Liquid-fuel burner..... W. Gordin
- Liquid-heating apparatus..... H. Junkers
- Liquid regulator, Float-operated..... T. P. Sanborn
- Liquid server..... C. W. Corey
- Liquids, Mechanism for combining..... J. W. Ledoux
- Load binder..... W. C. Kelso
- Loom shedding mechanisms, Jack connection for..... T. Gilson
- Loop, Adjusting (Reissue)..... P. Hirsh
- Mail bag..... H. Ebert
- Mail-canceling and distributing device..... F. Danzer
- Mangles, Automatic pressure-roll control for..... W. Bartholomew et al.
- Manicuring device..... H. La Casse
- Measuring apparatus, Water..... F. N. Connet
- Measuring device for plant-setting machines, Water..... J. Riemenschneider
- Metal bodies, Heat treatment of..... J. H. Barker
- Metallic sheets, Separating..... W. R. Kinnear
- Metallic thorium, Production of..... W. C. Arsem
- Mine cages, Safety-lock for self-dumping..... W. J. Phelan
- Mop..... H. A. Wier
- Mop wringer..... S. C. Lawlor
- Mortising machine..... G. W. Campbell
- Motor control, Induction..... M. Milch
- Motor, Electrically-driven winding apparatus for spring..... W. P. Phillips
- Motors, Muffler for internal combustion..... M. R. Gipple
- Mower..... F. D. Mercer
- Mower, Lawn..... W. H. and H. T. Coldwell
- Mowing machine cutter bar..... C. H. Likely
- Muffler..... F. Lower
- Nursery chair..... A. K. Nixon
- Nut lock..... A. N. Davis
- Nut wedge..... F. W. Rowe
- Oil burner..... L. Butler
- Oil burner..... O. B. Clayton
- Ore separator..... F. J. Hobson et al.
- Orthodontia appliance..... C. F. Montag
- Osteopathic table..... J. V. McManis et al.
- Ozone generator..... S. Held
- Packed moving part..... P. J. McCandless
- Packing, Metallic piston-rod..... S. Caesar
- Packing, Shaft..... O. Dahlke
- Pails, baths, and other liquid-containing vessels, Device for use with..... J. Burgess
- Panel..... B. C. Rockwell
- Paper, Carbon..... C. M. Glen
- Paper-making apparatus..... P. Couper
- Paper roll and fixture, Toilet and towel..... A. J. Lewthwaite
- Pedal operator..... J. C. Cake
- Pen clip..... W. A. Sheaffer
- Pencil clasp..... J. Leitschuh
- Pencil holder and sharpener..... R. Peden
- Percolating device..... J. W. Chapman
- Petroleum, Solidification of..... C. Gerard
- Piano violin..... H. Schlemmer
- Picture machine, Motion..... L. C. Van Riper
- Piles made of concrete or other plastic material, Shoe for..... M. Kahn
- Pipe hanger..... E. J. Hiller
- Pistol, Liquid..... R. Parker
- Planter and cultivator..... G. C. Knight
- Planter-marker lifter, Corn..... L. Bollenbach
- Plate trimming machines, Gage mechanism for..... B. S. Redd
- Plier wrench..... J. E. Finney
- Pliers..... W. Michaelis
- Plow..... A. E. Bost
- Plows, Flexible connection for gang..... W. T. Bennett
- Plows, Plow-lift for gang..... P. Rideout
- Plunger for jigs..... S. V. Tench
- Potato assorter..... F. L. Rose
- Power-transmitting mechanism..... O. Keek
- Press..... F. J. Perkins
- Press safety attachment..... H. R. Blumberg
- Printer, Automatic label..... C. G. Patterson
- Printing and similar machines, Counting delivery for..... L. A. Schmidt
- Printing press, Multicolor..... O. Roosen
- Printing stamp..... G. A. W. Rashmaw
- Pulleys, Device for applying leather facings to..... R. V. Hittschmann
- Pump, Metallic diaphragm..... K. Steinbecker
- Pump, Rotary..... G. L. Howell
- Pump, Rotary..... T. J. Pagel
- Pumps, Balancing device for..... T. Evans
- Push button..... A. Lungen
- Puttying device..... W. E. Glover
- Railway and tramway..... C. de Bange
- Railway-rail brace..... C. H. York
- Railway-track structure..... H. Kohlmyer
- Reckoner, Butcher's ready..... A. C. Gerrard

ISSUED JANUARY 27, 1914.

MECHANICAL PATENTS.

- Addressing machine..... H. M. Whitman et al.
- Advertising device..... A. Soulages
- Agricultural machine..... E. B. and S. E. Talbot et al.
- Air compressor, Wave-actuated..... S. Caldwell
- Angle bar..... E. H. Dull
- Animal hanger..... B. M. Knudson
- Annealing furnace, Upright..... C. E. Fairbanks
- Applique machine..... C. A. Wright
- Arch supporter..... C. C. Steger
- Autographic register..... E. J. Barker
- Automatic brake..... H. H. Phillips
- Automatic switch..... F. R. McBerry
- Automatic switch for traction lines..... F. Rice
- Automobile power plant..... L. J. Monahan
- Automobile signal..... C. W. Murphy
- Auxiliary coupling..... S. H. Boltz
- Bag frame and hinge..... J. S. Isidor

Refrigerating apparatus W. Cooper
 Refrigerator, Evaporative C. J. Squires
 Refuse destructor H. N. Leask
 Regenerative furnace, Reversing (2 pats.) L. L. Knox
 Registering device H. G. La Sor
 Registering machine C. F. Grainger
 Resilient wheel F. J. Krodell
 Resilient wheel, Non-puncturable E. Keup
 Resinous condensation product E. S. Dawson, Jr.
 Rim, Demountable J. B. F. Herreshoff
 Roasting furnace J. B. F. Herreshoff
 Rock drills, Post-collar for R. Nettell
 Salt and pepper cruet, Combination H. D. Kirkley
 Saw W. Smith
 Saw set J. I. Simmons et al.
 Saws and the like, Means for removing chips from the cutters of cutting off G. Gorton
 Scraper W. H. Perkins
 Separator A. Bighetti
 Separator trap E. C. Kelly, Jr.
 Sewing machine attachment E. J. Boyler
 Sewing-machine attachment holder M. E. Tynes
 Sewing machine feed mechanism E. J. Boyler et al.
 Sewing machine, Leather L. Rosenthal
 Shade roller, Window D. M. Harrison
 Shaker L. V. Lopez S.
 Sharpener-locking device C. M. Kanawah
 Sheet-adjusting apparatus J. Sampere
 Sheet-registering mechanism M. A. Maley
 Sheets, Handling H. A. Maley
 Sheets, Making planished S. M. Cooper
 Shipping device B. L. Monesmith
 Shirt sleeve, Adjustable L. Baner
 Shock-collecting apparatus M. D. Reip
 Shoestring fastener H. De Bry
 Sifter, Ash A. R. Kerr
 Sifter, Dustless ash J. Bush
 Sign W. G. Ford
 Signal apparatus, Electrical W. Kepler
 Signal transmitter, Selective M. Levison
 Skein-unwinding device T. J. Sands
 Sleigh brake J. M. Bareinger
 Sluice box J. C. Wilson et al.
 Soap, Manufacture of milled F. A. V. Klopfer
 Soap press B. H. Becker et al.
 Soldering iron, Convertible H. A. Paquette
 Sound box P. J. Mukautz
 Spillway, Automatic C. Schalles
 Spring clasp J. Bonner
 Spring structure O. R. Hunt
 Spring structures, Brace for L. A. Young
 Staging D. N. Hunt
 Stamping device J. Malsch
 Stanchion F. W. Moldenhauer
 Steam-condensing and vacuum-producing apparatus D. B. Morison
 Steam from turbines for industrial purposes, Extracting E. D. Dickinson
 Steel A. J. Rossi
 Stoker for underfed furnace grates F. E. Davis
 Stone, &c., Treating artificial C. H. Seaman
 Stopper head and sleeve brick H. Teeter
 Store-front construction C. S. Thorne
 Stovepipe cleaner and damper W. J. Sexton
 Street sweeper H. Pezzetti
 Structural member J. Kahn et al.
 Superheater A. W. Bruce
 Switch lock (2 pats.) M. Schroyer
 Table G. Corbo
 Tamper F. A. Stafford
 Tamping machine C. W. Bradley
 Telegraph receiver, Printing G. S. Hiltz
 Tire F. S. Byington
 Tire H. Cooney et al.
 Tire, Automobile W. E. Delehanty
 Toothpicks, &c., Single-delivery holder for R. C. Bryant
 Torch and torch can W. H. McNutt
 Toy, Constructional W. Michaelis
 Traction and rolling apparatus W. H. Coldwell
 Trellis J. J. Williams
 Tremolo mechanism B. R. Van Valkenburg
 Trolley D. E. Barton
 Trolley harp C. L. Larrabee
 Tube-mill cement feeder A. E. Sparrow
 Tunnel structure, Subaqueous O. Hoff
 Turbine-blade attachment L. Cubelic
 Turbine, Elastic-fluid W. Kieser
 Turbine, Mixed pressure O. Junggren
 Turbine, Mixed-pressure W. Pape
 Turbines, Nozzle for W. Pape
 Turbines, Steam regulator for tapped O. Junggren
 Turbines, Steam regulator for W. Pape
 Twine cutter F. E. F. Neubert
 Type-writing at a distance, Apparatus for H. E. M. Schnurer
 Typographical machines, Galley mechanism for repeating and non-repeating line-casting H. Hartmann et al.
 Umbrella frame G. J. Pilger
 Unloading device C. G. Sprado
 Vacuum indicator C. R. Keeran
 Valve adjuster C. F. Townsan
 Valve grinder A. B. Combs
 Valve mechanism for explosive engines O. Miller
 Vehicle J. C. Smith
 Vehicle, Automatic earth-loading D. C. Funcheon
 Vehicle body H. H. Marker
 Vehicle, Double-decked L. Spangler
 Vehicle fender G. Hipgood et al.
 Vehicle, Motor D. M. Smith
 Vehicle wheel G. R. Williams
 Vest E. Gombor
 Voting machine P. Yoe
 Wagon-bed attachment J. H. Bell
 Wardrobe A. E. Kinen
 Washing machine R. Daniels
 Water closet J. C. Schumacher
 Water-elevating mechanism E. Hodsou
 Water-sterilizing tank S. Held
 Water-supply system A. H. Kruesi
 Wheels, Mud shedder for vehicle H. G. Newsom
 Wick-engaging member and manufacturing it A. J. Blackford

Wind shield P. De Anguera, Jr.
 Wind shield M. D. Maremont
 Window ventilator, Adjustable O. B. Lofstedt
 Windows, Positioning device for J. B. Glowacki
 Wire-netting machine H. G. Thomson
 Wire-wiping machine W. O. Gillam
 Wood, Extracting products from W. B. Harper
 Wrapper and folder A. P. Holden
 Wrapping machine (2 pats.) A. P. Holden et al.
 Wrapping-machine folder A. P. Holden et al.
 Wrench J. Wedin
 Wrench D. G. Gay
 Writing machine E. B. Hess
 Yarn-drying machine T. Allsop et al.
 Yoke, Draft-gear C. J. Nash

ISSUED FEBRUARY 3, 1914.

MECHANICAL PATENTS.

Account register A. F. Staples
 Aeroplane O. Brunicardi
 Aeroplane-controlling device J. P. Nissen
 Agricultural implement F. Billhorn
 Agricultural system, Electrical C. S. Doney
 Aid and controlling the humidity and temperature thereof, Humidifying W. H. Carrier
 Air and gasses, Means for removing moisture from P. Schou
 Alloy, Making an iron-nickel-copper G. H. Clamer
 Anchor, Driven I. G. Howell
 Animal trap C. Yost
 Annunciators for cars, Means for operating street and station T. G. Leavell
 Anode support C. E. Leffel
 Antiseptic (2 pats.) P. J. A. Maignen
 Automobile body E. H. Biuns
 Automobile fender W. A. Linquist
 Automobile signal W. I. Smith
 Automobiles, Changing gearing for M. Fischer
 Axle spindle A. J. Hall
 Bag holder I. F. Reed
 Bag support P. T. Stewart
 Bais, Tree device for traveling E. W. Bryson
 Bait, Artificial P. R. Wilber et al.
 Bale tie T. S. Pearson et al.
 Baseball apparatus A. McMillan
 Battery negative-pole plate, Electric-storage E. W. Smith
 Battery terminal, Secondary or storage J. W. Achard
 Bean snipper L. Janquart
 Bearing C. A. Parsons
 Bed, Concealable O. B. Burns
 Bed, Folding O. A. Honsinger
 Beehive G. T. Whitten
 Bell, Electric H. E. Reeve
 Belt clamping device F. W. Schroeder
 Belt clasp C. E. Sackett
 Binder attachment H. S. Kjenstad
 Blast furnace J. Reis
 Bleaching and like fluids, Apparatus for preparing C. A. M. Buckley
 Block-signal system L. A. Hawkins
 Blocks, Making F. Zagelmeyer
 Boat-hoisting and lowering device J. Drover
 Bobbins, Device for heating wound thread H. A. Bates
 Boiler cleaner, Automatic A. A. Olson
 Boiler furnace, Steam G. S. Gallagher
 Boiler or heater A. H. Morrow
 Boilers, Hand-hole cover for W. Brown
 Boilers, Hand-hole cover plate for W. Brown
 Boll weevils, Machine for removing S. F. Jones
 Bolt and rivet header W. L. Clouse
 Bolt mechanism, Door (2 pats.) C. A. Berry
 Bond, Inductive or transformer J. S. Lennox
 Bottle filler H. O. Fisher
 Bottle, Non-refillable A. Martel et al.
 Bottle, Non-refillable C. H. Hammond
 Box holder, Packing N. C. Lynd
 Brass-pickling solutions, Maintaining the efficiency of R. R. Parish
 Broad receptacle C. A. H. Otto
 Breathing apparatus, Battery for absorbing carbonic acid as used in A. B. Drager
 Bromine, Recovery of A. E. Schaefer
 Bromodiethylacetyliscyanate F. Hefti
 Brooder for chicks F. W. Hammer
 Brush, Fountain C. C. Acton
 Brush, Tooth D. Weiss
 Buckle A. E. Clark
 Building block, Molded W. B. Bolles
 Buildings and other structures, Underpinning J. B. Goldsborough
 Bundle gatherer and loader J. H. Huffman
 Bundle-tying device O. H. Orendorff
 Bung bushing A. G. Kaufman
 Burial receptacle M. P. and L. E. Little
 Burner R. C. Frampton
 Button H. Weber
 Cabinet, Douche C. A. Bourke
 Cable connector M. K. Schilling
 Cableway S. S. Webber
 Cableway carriages, Slack-pulling device for C. Sharkey
 Calculating machine A. F. Peole
 Calculating machine H. E. Goldberg
 Calculating machine W. W. Hopkins
 Calculating machine M. Teetor
 Calculating machines, Control mechanism for W. Wooley
 Can-heading machine L. C. Krummel
 Can holder for machines, Oil T. J. Burger
 Cans, Machine for renewing old C. Cosby
 Caoutchouc-like products, Manufacturing A. Caroselli
 Car, Ballast F. H. Hopkins
 Car construction W. J. Tollerton
 Car door and partition, Combined R. E. Moore
 Car-door bolting system B. Reviron
 Car-door bracket F. Mathews
 Car, Dumping M. E. Stange
 Car fender A. A. Unruh
 Car fender M. A. Sprague
 Car-uncoupling device L. S. Quensel

Car safety appliance, Railway (2 pats.) C. M. Mock et al.
 Car wheels, Making S. P. Bush
 Car wheels, Making S. P. Bush
 Carbureter P. J. Sassano
 Carburetor P. Gehrman
 Carding cylinders, Pneumatic stripping mechanism for A. Rouge
 Cash register (2 pats.) H. S. Hallwood
 Cash register T. F. Pearson
 Cash register C. Palmer
 Cash register, indicator and recorder H. S. Hallwood
 Casket, Burial W. E. Hughes
 Cast-off construction E. N. Humphrey
 Catch, Safety S. Unger
 Cement, Treating Portland and similar H. J. Force
 Chain J. M. Dodge
 Chain rack, Pattern S. B. Taft et al.
 Chain wrench G. W. Gruver
 Chains, Making L. E. McKinnon
 Change-making machine J. Staziak
 Checker board W. K. Russell
 Chopping and pounding implement J. E. Bell
 Chutes, Automatic regulator for coal S. J. Callender
 Cigar box, Non-refillable J. Gagliano
 Cigar cutter, lighter and advertising apparatus, Combined L. B. Grasberger
 Cigarette case J. P. McAdam
 Circuit-breaking means for motor-vehicles H. S. and M. L. Heath
 Clamp for doors, windows, and the like D. Donald
 Cleaning device A. Brunner
 Closet tank, Railway H. T. Cronk
 Cloth sponging and refinishing machine E. F. Rummel
 Clothes-line holder D. W. Gore
 Clothes-line holder G. E. Alexander
 Clutch, Friction G. Stahl
 Coal breaker and cleaner G. W. Borton et al.
 Cock, Electric shut-off M. H. Tracy
 Cock or valve C. H. Reynolds
 Cock, Test or priming B. Morgan
 Coin-packing device J. E. Doldt
 Coin-repository or bank V. vom Eigen
 Collapsible box A. Wollitzer
 Collapsible gate A. A. Whitlock
 Collar attachment, Horse R. B. Jordan
 Collar hook W. A. Hayden
 Color screens, Making O. S. Dawson et al.
 Composing machine, Typographical J. Mayer
 Concrete columns, Form for H. C. Waldman
 Concrete construction, Reinforced V. J. Hultquist
 Concrete fence posts and braces, Combination mold for T. C. Cole
 Concrete silo W. A. Hillman
 Concrete sluice mold B. B. McDowell
 Controller regulator H. Elbe
 Convertible motor and pump E. R. Sloan
 Conveying and feeding mechanism F. Wegner
 Cooker Steam T. C. Schuyler
 Core for molding or casting, Collapsible G. Atterbury
 Corn husker C. Younger
 Cornice, Non-drip H. J. Wagner
 Corset cover L. T. Furnas
 Corset-stay J. E. Crandall
 Cotton gin S. D. Murray
 Cotton picker H. T. Noble
 Coupling-tapping machine J. H. Baker et al.
 Cover opener, Receptacle M. G. Hoffmann
 Cranes or davits G. Rennerfelt et al.
 Crate, Foldable E. T. Bond
 Crushing and pulverizing machine J. E. Kennedy
 Cuff, Reversible I. Berkenfeld
 Cultivator hopple J. E. McCanness
 Current motor, Alternating (2 pats.) V. A. Fynn
 Currycomb A. B. Line
 Curtain-hanger clamp N. E. Larson
 Curtain support W. H. Edsall
 Die H. Zimmerman
 Die stock (2 pats.) H. W. Oster
 Disinfectant M. Moehrl
 Disintegrating machine C. H. J. Dilg
 Display stand and cover for receptacles, Combined G. P. Waidely
 Distilling wood F. and G. M. Pope
 Doll, Crying A. Steiner
 Door C. Mosch
 Door hanger, Sliding R. C. Williams
 Door lock J. T. Brackin, Jr.
 Door-opening and closing mechanism B. S. Appleton
 Door-operating means R. Loring
 Door sealer E. Ellis
 Door, Sliding W. H. Schwartz
 Draft rigging, Draw-bar yoke and draw-bar-yoke connection for C. J. Nash
 Drag attachment J. A. Janss
 Drawings, Support for R. H. Smith
 Drying apparatus T. C. Schuyler
 Drying apparatus W. E. Prindle
 Drills, Drill-holding head for miners C. E. Holt et al.
 Driving member, Yielding J. A. Hafner
 Dumping machine A. E. Graves
 Duplicating machine (2 pats.) H. G. Liebenthal
 Duplicating machine K. R. O'Kane
 Dyes and making same, Anthracene O. Bally
 Dyes, Yellow azo H. Geldermann et al.
 Egg handler H. R. Morris
 Electric apparatus and method of operating the same, Vapor E. Weintraub
 Electric apparatus, Vapor E. Weintraub
 Electric apparatus, Vapor O. O. Kruh
 Electric connector J. Berg
 Electric device, Vapor O. O. Kruh
 Electric furnace B. Guthrie et al.
 Electric-light fixture, Adjustable T. Smith
 Electric switch and locking means therefor R. H. Vickers
 Electrical distribution system H. Hazelton
 Electrical energy, Means for transforming E. Weintraub
 Electrical energy, Transforming E. Weintraub
 Electrical protective device F. B. Cook
 Electrical switch G. A. Knaak

Electrically selecting and controlling a number of elements from a distant point, System and apparatus for N. H. Morrison
 Electricity, Producing light by E. Weintraub
 Electromagnetic structure A. E. Berdon
 Electroplating rack C. E. and J. D. Leffel
 Electroplating tanks, Hood for C. E. Leffel
 Elevator plant, Automatic C. O. Pearson et al.
 Elevators, Combined friction and spur gearing for traction A. Sundh
 Embossing die, Multiple E. D. Sherlock et al.
 Embroideries, Cutting-out machine for J. Grob et al.
 Embroidering machine, Shuttle R. Zahn
 Embroidery stitches, Forming R. Loeb
 Engine F. Hennebohle
 Engine-cranking device, Internal-combustion C. A. Bartlog
 Engine-starting mechanism, Multicylinder-internal-combustion O. F. Fischedick et al.
 Engines, Fuel-mixer for explosive S. T. Playford
 Engines with internal combustion, Reversing device for H. Wiederkehr
 Envelope-opening device S. W. Roy
 Evaporative cooler W. M. Reeves
 Excavating machine C. E. Negley
 Excavator, Manual J. Austin
 Exhibitor P. H. Healy
 Expandable chamber H. E. Oxnard
 Explosive engine D. M. Tulloch
 Extensible table J. Sedaj
 Eyelet-setting machine (Reissne) W. Hughes
 Face-cut, Automatic registering E. Robbins
 Feed mechanism, Collapsible R. W. Scott
 Feeding device W. R. Allen
 Feeding mechanism W. R. Allen
 Feeding roller W. R. Allen
 Field-coil support C. W. Starker
 Filaments for tungsten lamps, Manufacture of G. P. Scholl
 Filaments, Treating incandescent lamp R. H. Henderson
 Fire escape W. Liess
 Fire-extinguishing compounds J. W. Aylsworth
 Fire or lighting appliance with pyrophoric metal, Pocket F. Hofmann
 Fires in oil tanks, Extinguishing J. B. and O. R. Erwin
 Firearm C. A. Nelson
 Fish gaff R. M. Bemis
 Flame-extinguishing material J. W. Aylsworth
 Flax, Preparing (4 pats.) G. H. Caupbell
 Floor structure E. A. and G. H. Herzberg
 Flue, Combination R. A. Carl
 Fluid-dispensing apparatus E. C. Bennett
 Fluid-pressure brake W. V. Turner
 Fly trap L. P. Riehman
 Flying machine R. M. Metcalf
 Folding carrier C. H. Cronk
 Food products, Apparatus for processing and preparing A. L. Dunnean
 Force, Utilizing expansive H. A. Humphrey
 Forceps, Obstetrical A. L. Townsend
 Form, Garment A. D. Smith
 Fowl-beheading tool E. Boettger
 Fruit picker or gatherer G. J. Falkin
 Fuel, Burning solid O. B. Evans
 Funnel E. W. Mueller
 Fur-heating machine C. Eshwei
 Furnaces, Car-feeding device for tunnel A. H. Cowles
 Galvanometer R. R. Shay et al.
 Game apparatus A. M. and A. M. Lockett, Jr.
 Game, Baseball H. R. Cullmer
 Game-registering device H. West
 Gas engine, Rotary E. B. Smith
 Gas producer E. A. W. Jefferies
 Gas producer P. G. Schmidt
 Gear-cutting machine I. E. McCracken
 Gear for motor cars, Transmission V. Lancia
 Gear, Friction draft J. F. O'Connor
 Gearing, Interrupted drive C. O. Michaelsen
 Geographic-position indicator F. R. Sweeney
 Glass-polishing machine J. A. Olson
 Glass rollers and other hollow articles immediately from the glass harbor, Permanently draining sheet W. Zahradnik
 Glue converter H. Angebrandt, Jr.
 Glue, gelatine, and the like, Manufacture of A. Low et al.
 Governor, Centrifugal (Reissue) C. Day et al.
 Governor, Gasoline engine H. D. Hill
 Grater and slicer H. F. Balgeman
 Grates, Spacing mechanism for pulverizing H. J. Shelton
 Grease cup N. W. Cummins
 Grinder, Motor knife A. P. Redden
 Grinder, Portable M. F. Aggar
 Grinding machine C. B. Hess
 Hammers, Guard for pneumatic H. N. Evans, Sr.
 Hat fastener A. J. Colombot
 Headlight W. T. Moran
 Heat regenerator for heating air or gasses O. Gobbe
 Heater D. S. Webb
 Heater for dwellings J. Ingalls
 Heating and cooking device, Electric W. S. Hadaway, Jr.
 Heating system, Vapor E. C. Wiley
 Heel die J. E. Glidden
 Heels, Machine for operating upon J. H. Pope
 Hinge H. V. A. Loring
 Hinge, Double-acting door closer W. K. Henry
 Hoop fastener A. Rasmussen
 Horse overshoe (2 pats.) J. J. O'Connell
 Horseshoe calk, Removable T. H. Warner
 Horseshoes, Antislipping attachment for H. B. Paine
 Hose coupling J. C. Hayes
 Hose supporter R. Gorton
 Hot-water deflector N. M. Davidson
 Hub and axle connection, Steering wheel W. S. Weatherwax
 Hydrogen under pressure, Working with C. Bosh
 Incubator and brooder, Combined H. A. Teegarden
 Indicator coupling L. Abadie
 Influence machine R. E. Baker
 Inhaler C. Wilson

Ink-dividing band for rollers. C. H. Davids
Insecticide for plants and making the same K. Fischer
Insulating lining C. L. Sherman
Insulator and current distributor E. H. Knutz
Internal-combustion engine. H. H. Brautigam
Internal-combustion engine. L. Grasso
Internal-combustion engine. G. R. Ibach
Internal-combustion engine. S. J. Sydney
Invalids, deformed persons, or the like, Apparatus for handling. A. Skeffington
Invalids, Device for moving. A. S. Roush et al.
Iron and other metals, Manufacture of. A. E. Bourcoud
Iron and other metals, Means or apparatus in or relating to the manufacture of. A. E. Bourcoud
Iron, Industrial manufacture of electrolytic A. Boucher
Ironing machine. A. R. Gustafson
Irrigator, Automatic. H. C. Heath
Journal bearing. C. Dunning
Journal box lid. G. A. Woodman
Keyboard tape perforator (2 pats.). E. E. Kleinschmidt
Kinematographic film. S. Cocanari
Lacing studs, Machine for inserting. A. H. Shipley
Ladder. S. W. Perkins
Ladder and chair, Combined. J. C. Christiansen
Lamp, Electric (2 pats.). E. Weintraub
Lamp for search-lights, projectors and the like, Electric arc. H. Beck
Lamp guard, Incandescent. J. A. McMichael
Lamp, Incandescent gas. C. I. Tenney
Last (2 pats.). G. Clausing
Latch for doors and the like, Temperature-released. E. F. Schnuck
Latch, Locking. H. A. Palmer
Lawn sprinkler. H. Gibbs
Lenses, Apparatus for making bifocal. H. E. Mendelssohn
Leveling machine. E. A. Webster
Leveling-machine jack. E. A. Webster
Lever, Foot. G. Wilson
Life-buoy fastener. M. S. Sahl
Light support. W. E. Donner
Line-casting machine. P. T. Dodge
Linotype machine. W. E. Bertram
Liquid-applying apparatus. C. F. Pease et al.
Liquids, Raising or forcing. H. A. Humphrey
Lock. I. D. Merritt
Lock. J. H. Shaw
Lock-controlling device, Receptacle. G. W. Boylan
Locking device. W. M. Jenkins
Locomotive. C. J. E. Waxbom
Locomotive driving wheels, Machine for truing. J. C. Tyler et al.
Locomotive hoist, Screw-jack. C. A. Hardy
Locomotives, Device for setting and locking the reverse mechanism of. J. J. Briggs
Lubricating apparatus. L. G. M. West
Lubricator. B. F. Howard
Manure distributor. C. M. Parks
Match-boxing machine (2 pats.). M. Paridon et al.
Match holder for caps. P. R. Burns
Match safe. R. L. Clark
Match safe. J. A. Francis
Measures, System for gauging cylindrical. R. J. Hagey
Metal caps, Machine for dishing and corrugating. T. E. Hunt
Metal, Expanded. N. E. Clark
Metal-working machines, Work holder for. R. W. Lord
Metals during annealing, Preventing oxidation of. J. F. Thompson et al.
Metals, Electric fusion of. A. P. Strohenger
Metallurgical and chemical process, Economic. J. E. Bucher
Milk cooler. E. R. McClure
Milling machine (2 pats.). W. R. Lakey
Mirror periscope, Annular. Humbrecht
Mixer. W. H. Fulton
Mixing machine. H. Hackstedde
Mixture regulator. O. Winkler
Moistening and sealing device, Envelope. J. J. Quigley
Mold-filling apparatus. I. L. Conkling
Molding flask. J. C. Dupler
Molding machine. A. M. Zimmerman
Motors, Reversal-regulator for single-phase. D. L. Lindquist
Mounting eye specimens. F. L. Barrows
Mouse trap. J. M. Butcher
Music rack. E. A. Hunsaker
Music, Writing. R. J. Grant
Musical instruments, Reed-clamp for. G. S. Hershey
Neck-making machines, Cutting mechanism for. B. Rous
Neck-making machines, Forming block and its appurtenances for. B. Rous
Nest, Trap. F. J. Carlson
Nut lock. L. D. Rettstatt
Objective system. A. Konig
Oil press. C. D. Orr
Oiling device. G. J. von Hagel
Optical-instrument-adjusting device. H. Jacob
Orchard heater. E. E. Chinn
Ore concentrator. H. Earle
Oven, Baker's. V. D. Dunahugh et al.
Ovens, Feed mechanism for bakers. F. Kuitz
Ozone generator. W. O. Freet
Package fastener. W. J. McFerran
Package for beer, ale, wine, and other liquids, Metal-lined. W. A. Hall
Packing. C. E. Strong
Packing, Machine for making. W. D. Smith
Packing ring. M. E. Knight
Pamphlet coverer. A. Bredenberg
Panel-operating device. P. Welin
Paper-box-making machine (2 pats.). O. W. Hanson
Paper clip. J. A. Wilson
Paper, Machine for facing corrugated. G. W. Swift, Jr.
Paper receptacle. S. M. Langston
Parcel-post computer. A. H. Pleasants
Paring machines, Feed mechanism for apple. F. B. Pease

Pasteurizing apparatus. F. Gettelman
Pen-blank-forming machine. J. F. George
Pencil attachment, Lead. R. Zohm
Pencil, Ink. J. Wallace
Perforating-machine feed mechanism. A. De Kleist et al.
Permutation lock. P. Eagle
Permutation lock. P. C. Minotte et al.
Phonograph. P. Catucci
Phonograph sound box. P. Catucci
Photographic-print washer. J. B. King
Photographic-printing device. F. O. Dennis
Photographic reproduction of books, writings, &c., Apparatus for the. H. Jantsch
Piano fall board, Grand. C. Mehlin
Piano pedal action. A. A. Huseby
Piano-playing mechanism, Automatic. M. Clark
Picker's and packer's bag. J. D. Yeates
Picture machines, Film-winding mechanism for moving. J. B. Merkel et al.
Pipe-coupling machine. E. Humphrey
Pipe couplings, Machine for threading. W. M. Neckerman
Planes, Guard for hand. J. E. Westberg
Planter, Potato (2 pats.). L. A. Aspinwall
Planter attachment. A. E. Schadt
Plier wrench. H. R. Palmer
Pocket closer. J. M. Fiegle
Pocket knife. J. E. Fuller
Polishing plated flat ware. P. B. Noyes
Portable chair. M. Beni
Portfolio for displaying samples. M. Steintal
Presses, Guard mechanism for punch. O. Kartzmark
Printing machine. J. D. Hall
Printing machine. F. W. Adams
Printing machine web-controlling device. R. Hoe
Printing machines, Sheet-retarding delivery for. E. O. Cartwright
Printing press automatic feeder. M. Boden
Printing presses, Inking disk for. F. J. Antelotti
Prismatic device. H. Jacob et al.
Projection instrument. C. B. Boyle
Propeller for ships. G. Cardosa
Pulsator. A. H. Gibson
Pulverizer. W. K. Liggett
Pump. E. W. Cash
Pump. P. T. Snyder
Pump. C. Bresnahan
Pump, Centrifugal. F. Lobnitz
Pump, Deep-well. T. O. Perry
Pump lubricator, Air. G. M. Schwend
Push button, Indicating. W. R. Schlage
Puzzle. J. C. Patterson
Pyrophoric igniter. L. Neumann
Quenching and conveying glowing materials, Apparatus for. A. Brunner et al.
Radiator section. H. Kutzner
Rail chair. P. Hebert
Rail-fastening device. R. L. Clark
Rail joint. S. D. Bell
Rail joint. R. N. Dithmer
Railway, Gravity. F. Glynn
Railway lines, Construction of. K. Tenka
Railway rolling stock. J. H. Kearns
Railway safety device. W. J. Meenaghan
Railway signal. J. P. Coleman
Railway sleepers, Machine for grooving. A. Pankl
Railway tie. C. Bailey
Railway tie. T. H. Bacon
Railway tie. R. W. Schulz
Railway tie. T. D. Allen
Railway tie. A. Kruger
Railway tie and fastening. R. Schramm
Railway tie, Metallic. W. T. Cody
Railway trains, Automatic stop for. F. J. Schneider et al.
Railways, Haulage clip for rope haulage. E. G. Arnold et al.
Rattling machine. J. Michitsch
Razor-blade-stropping device, Safety. A. C. Stover
Rectifying apparatus. C. A. Kraus
Refrigerating apparatus, Absorber for. T. C. McKee
Relay, Electromagnetic. J. F. D. Hoge
Resilient wheel. H. C. Percy
Rheostat. N. Wilkinson
Ring key, Indicating. E. B. Craft
Roadway, Asphaltic. E. M. Chadbourne
Roaster and broiler. A. Day
Roll-ramming apparatus. H. P. Macdonald et al.
Rotary engine. H. E. Goldberg
Rowing gear. A. J. Herweg
Rug fastener, Stair. R. P. Bennett
Salt and pepper shaker. L. L. Blum
Salt, Manufacture of common. A. W. Brown et al.
Sand, ore and the like, Apparatus for washing and separating. H. O. Johnson
Sandal. L. H. Gilbert
Sash construction. G. H. Forsyth
Sash-cord fastener. J. E. and J. F. Bennett
Sashes of carriage doors, Apparatus for operating the window. A. Rheims et al.
Saw guide, Band. A. M. and E. Newell
Saw handle. H. A. J. Thrun
Sawing machine. C. W. Allen
Scaffold, Hanging. C. M. Haynes
Scoring device. S. E. Page
Screening apparatus. L. M. Sheridan
Screw-making machines, Screw-head-slotting mechanism for. W. F. Reed
Search light, Intermittent. E. F. Giannattasio
Seat cover, Sanitary toilet. G. C. Elvers
Seed-testing apparatus. B. H. and W. C. Adams
Self-opening die. O. A. Smith
Separating apparatus. F. H. Mason et al.
Separating machine. T. O. Ballard
Sewing machine, Button. W. L. Barron
Sewing machine, Buttonhole. J. T. Hogan
Sewing-machine looper mechanism. A. H. De Voe
Sewing-machine trimming attachment, Shoe. C. A. Bonney
Sewing machines, Edge-turning attachment for. M. Abramowitz
Shade tester, Window. J. Isaacs
Sharpening machine, Razor. F. M. Gordon
Sheep bed ground. L. J. Logan

Sheet-delivery mechanism. N. Meyers
Sheet-metal trim. F. C. Gunn
Shock absorber. O. J. Hobson
Shock absorber. J. M. Jackson
Shock loader. W. Weigel
Shoe-polishing machine. C. F. Dieckmann
Shoe-polishing machine. G. F. Green
Shoe-polishing machines, Foot support for. I. E. Campbell
Shoe-shaping machine. C. De Minico
Shoe-tip-driving rack, Apparel. A. B. Goodbar
Shovel. J. S. Surbaugh
Shut-off, Float-operated. J. King
Sifter, Flour. J. C. Root
Sign. J. K. Burleigh
Sign hanger. E. W. Storey
Signal. L. W. Yaggy
Signaling device. S. L. Martin et al.
Silver ores, Metallurgical treatment of. O. Dyckerhoff
Sizing, Composition of matter for adhesive. A. V. Kirkeby
Sled mobile. T. A. Dora
Slicing and cooking machine, Vegetable. J. H. Varian
Slimes-roasting apparatus. R. T. Wales
Smelter fumes and recovering their values, Apparatus for arresting. C. S. Vadner
Snap socket shell. C. D. Platt
Snow plow. W. H. James
Soap lather, Apparatus for beating. W. B. Nilsson
Solvents, Manufacture of organic. H. Hibbert
Spark plug. M. G. Kopf
Speed device, Variable. C. Ryden
Spinning and doubling machines, Spindle and tier for. W. T. Smith
Spinning-mule yarn guide. J. Hilberger
Sprag. J. H. Lavers
Spring wheel. F. Stitzel
Spring wheel. D. A. Gray
Stalk cutter. L. S. Williams
Stamp mills and the like, Lifting mechanism for. T. Frey
Stamp shoe, Manganese-steel. F. A. Haughton
Stanchion, Cattle. G. Gleason
Stapling device. I. Epstein
Starching machine. O. Miller
Stay bolt (2 pats.). E. I. Dodds
Stay-bolt cutter. W. Brown
Steam boiler, Semi-flash. C. A. Sawtelle
Steam trap. F. V. Anderson
Steam trap. C. W. Judd
Steam trap. F. Abels
Steel, Manufacture of. W. R. Walker
Sterilizer. A. E. Walden
Sterilizing apparatus. O. Weaver
Stile or barrier. H. A. Davis
Stitching-machine feeding mechanism. D. Reiser
Stitching machine, Pamphlet. D. Reiser
Stock-breeding appliance. A. L. Townsend
Stoker, Mechanical. G. B. Rait
Stone shingles, Machine for making artificial. C. Sivertson et al.
Store-service apparatus. C. J. Miller
Store-service apparatus. H. L. Wilson
Stove. L. A. Knowles
Stovepipe cutter. T. C. Fyhrle
Street or station indicator. J. D. Harvey et al.
Street sweeper. D. H. Finch
Sulphur derivatives of hydrocarbons, Producing. W. Steinkopf
Surveying instrument. R. E. Beebe
Sweetmeat shell. T. Becherer
Switch-lever lock. P. Ramsey
Switch-operating device. C. L. Stilson
Table slide. F. B. Walter
Tamping apparatus. C. S. Wert
Tank. E. James
Telegaph receiver, Printing. G. S. Hiltz
Telemeter. R. Stutzer
Telephone signaling for railways. M. Lutenberger
Telephone system. P. Lavery et al.
Telephone system. E. R. Corwin
Telephones and the like, Electrical connection for. J. A. Douglas
Telephones, Carriage attachment for desk. H. K. McKinney
Telephonic apparatus, Intercommunicating. M. R. Hutchison
Telescope, Sighting. F. J. Cleary
Telescopes, Adjusting device for. T. A. Fidjeland
Telescopes, Cross-line-adjusting means for sighting. F. J. Cleary
Thread-forming tool. R. B. Tewksbury
Threading machine. W. M. Neckerman et al.
Tides, Apparatus for making use of the energy of the. H. Rexroth
Tie and fastener, Combined. J. T. B. Andrews
Tilling the soil, Apparatus for. J. Rubarth
Time indicator. W. G. Bentley
Time recorder. H. T. Goss et al.
Time table, Rotary. A. H. Pleasants
Tire, Cushion. J. C. Schleicher
Tire holder, Spare. P. Morrissey
Tobacco leaves, Bleaching. T. Oelenheinz
Tongs, Casting. W. W. Wilkinson
Tongue-piece closures, Making and attaching. W. N. Horne
Tongue switch. J. D. McPberson
Tool and holder therefor, Combination. W. Soini
Tool, Box. W. Crandall
Torpedo, Rail. B. G. Vinson
Towel holder. D. B. Michie
Toy, Mechanical. E. B. Morrison
Track fastener (3 pats.). J. W. Stephenson
Tracker bar. L. M. Sanders
Traction engine. J. D. Ingram
Train-order deliverer (2 pats.). F. Dutcher
Transporting or landing device. C. H. Bowman
Trap. W. H. Frost
Trap. J. J. McDonald
Tree-felling-machine motor. P. R. Kramer
Tree surgery, Composition for. C. L. Whitaker
Trolley-wire ear. W. C. Starkey
Trough. E. Griffith
Truck, Hand. J. Chweiback
Truck, Lateral-motion car. W. H. Wilson
Tube-cutting machine, Automatic. A. M. Seeley et al.
Tube joint, Detachable. M. Blaha
Tube-mill feeder. T. W. Capen

Type-bar-casting machines, Casting and controlling mechanism of. H. Degener
Type writer, Cipher. F. Sedgwick
Type-writers, Envelope-addressing attachment for. G. M. Freeman
Type-writing machine. M. H. Lockwood
Type-writing machine. W. H. Hulse
Uncoupling device. C. A. Carscadin et al.
Undergarment. S. D. Bausher
Universal joint. V. L. Emerson
Unstopping machine. S. C. Bond
Vacuum-producing apparatus. J. I. McCormick
Valve attachment, Flush. W. A. Lupton
Valve, Double-heading control. J. R. Snyder
Valve for air-brake systems, Feed. J. R. Snyder
Valve for internal-combustion turbines, Feed. J. Raclot
Valve for vacuum heating systems. J. Porter
Valve gear, Steam engine (2 pats.). W. S. Brown
Valve mechanism, Cut-off. W. Y. Moffat
Valve, Rotary. R. Guillery
Valve seats and valve cones, Device for finishing and particularly for remilling. W. Westerheide
Valve stem, Self-registering. G. A. Howe
Valve, Triple. J. R. Snyder
Valve, Vacuum radiator. G. Van Dyke
Vehicle fender. A. J. Kolanko
Vehicle frame. A. J. Petter
Vehicle, Motor road. A. G. New
Vehicle wheel. J. D. Campbell et al.
Vehicle wheel. A. J. Mansfield
Vehicle wheel. T. Midgley
Vehicle wheel. C. L. Russell
Vehicle wind screen. G. G. Mooraj
Vehicles, Coin-control for motor. A. D. Grover et al.
Vehicles, Holdback attachment for tongued. T. D. Greer et al.
Vending machine. L. V. Kuhn
Vending machine. J. W. Mabin
Veneer-drying machine. J. E. Marquis
Ventilator. R. E. Powell
Ventilator. K. Graef
Vessels, Buffer for. J. Kralik
Veterinary instrument. S. B. Dunn
Violin, Electric self-playing. H. K. Sandell
Vitreous substance. F. Wolf-Burckhardt et al.
Voting machines, Interlock between groups for. C. C. Abbott
Voting machines, Paper-feed mechanism for (2 pats.). C. C. Abbott
Wall structure, Ventilated. L. K. Davis
Washing machine. P. Werner
Watches, Crown guard for bracelet. E. C. Fitch
Water for irrigation purposes, Apparatus for delivering. A. S. Gibb
Water heater, Portable. C. Schutz
Water motor. J. B. Rochelle
Way-biling means. J. A. Murphy
Web-roll renewer. R. Hoe
Web-supplying mechanism. R. Hoe
Weeder and cultivator. R. M. Bennett
Weighing attachment for wool-feeding machines. G. H. Boynton
Weight, Garment. S. Feld
Welding machine (2 pats.). J. H. Gravell
Welding the meeting edges of metallic articles. H. E. Snodgrass
Welding the meeting edges of metallic articles, Apparatus for. H. E. Snodgrass
Weiding thin sheets, Spot. E. Thomson
Well cleaner and agitator, Oil. F. C. Hoch et al.
Wheel rim, Vehicle (2 pats.). J. H. Wagenhorst
Whistle-blowing apparatus, Electric. F. C. McCaffrey
Window (2 pats.). E. Heroux
Window (2 pats.). G. H. Forsyth
Window construction (4 pats.). G. H. Forsyth
Window-pane fastener. E. J. Davies
Wire-bound box. A. Sturrock
Wire-drawing block. E. H. Carroll
Wire-stretcher clamp. H. E. C. Bottger
Wire winder. C. B. Ruby
Wire-working machine. H. L. Craven
Wood, Composition for artificial. I. S. Stahl
Woodworking machine. G. A. Turner
Woodworking-machine shaper. G. A. Turner
Work bench, Shoemaker's collapsible. M. Gross
Work supports, Mechanism for operating. L. A. Casgrain
Wrench. F. Thayer
Wrench. C. Jorgensen
Wrench. W. L. Bessolo

ISSUED FEBRUARY 10, 1914.

MECHANICAL PATENTS.

Abrasive disks or wheels, Display holder for. J. J. Smith
Account receptacle. R. Adler
Acid, Glycolic acid esters of 2-phenylquinolin-4-carboxylic. C. Zollner
Adding-machine register. J. A. Smith
Adhesive-bandage spool. O. C. Schulz
Adhesive-plaster container. O. C. Schulz
Adjustable die. F. W. Strecker
Aerial cableway (2 pats.). W. F. Izett
Aeroplane. A. E. Holbrook
Air-deflecting plate. D. J. Irish
Alcohols from chlorhydrocarbons, Preparation of. W. E. Masland
Alloys, Improving the magnetic qualities of iron-silicon-manganese-aluminum. R. A. Hadfield
Alloys, Improving the magnetic qualities of iron-silicon-manganese-aluminum. R. A. Hadfield
Amusement device. D. Carter
Anchor, Earth. J. Blackburn
Animals, including poultry and other birds, Boot for. L. C. Tipper
Antiskid chain. C. R. Rawdon et al.
Armor plates, Manufacture of. A. Lucertini
Asphalting apparatus. W. P. Tarrant
Automobile license-number case. V. B. Ratterree et al.

- Automobile safety device.....L. Ottinger
Automobile seat.....D. M. Engel
Automobiles, Electric signal for.....L. E. Landes
Bale-tie antibuckler, Cotton.....L. E. Meador
Bark-stripping tool.....A. Camanada
Barrel-forming machine, Metal-bilge.....W. B. Goddard
Barrette.....A. K. Collins
Bath attachment, Shower.....A. R. Holtman
Bath tub, Infant's.....H. F. Tate
Bearing, Flexible.....J. E. Magee
Bearing, Roller.....W. H. Makntchan
Bed heater.....E. Caldani
Bedstead.....W. Lewis
Bedstead corner fastener.....O. S. Foster
Beer-case-cover holder.....H. Braun
Belt guide.....O. Bergerson
Binder or loose-sheet holder, Temporary.....G. P. Wigginton
Binocular magnifier.....E. W. Beebe
Block-cleaning machine.....F. O. Lueck
Block-signal system.....J. Burke
Blower.....C. Neumanu
Blowpipe stand.....J. Murphy
Boiler stand, Adjustable.....J. Lafrance
Bolt lock.....W. F. Myers
Book and copy holder, Note.....A. V. A. Felton
Book, Coupon.....W. W. Syfert
Book, Quadruplicating.....C. L. Johnston et al.
Bookbinding.....S. J. Harbaugh
Boot and shoe welt.....W. B. White
Bottle caps, &c., Feeding apparatus for.....E. P. Wetmore
Bottle case.....G. G. Roberts
Bottle closures, Manufacture of.....S. C. Bond
Bottle feeding and capping machine.....H. G. Klett
Bottle-heating apparatus, Water.....H. W. Christian
Bottle holder.....A. C. Lailier
Bottle indicator, Poison.....G. O. Matter
Bottle, Non-refillable.....J. Nathan
Bottle, Poison.....W. Chapman
Box-corner protector.....K. M. Black
Box-covering machine.....J. Alger
Brake mechanism.....W. P. Collins
Bridle-brow-band loop.....W. A. Buche
Broom protector.....N. P. Boeckx
Broom support.....T. D. Richards
Brush.....C. W. Linscott
Brush holder, Tooth.....F. Ferenc
Brush, Shaving.....J. B. Banowetz
Brushes and bristle holders therefor, Manufacturing tooth.....D. L. Chandler
Bubble blower.....C. V. Boys
Buckle.....J. Heberling
Buckle, Belt (2 pats.).....G. M. Kaiser
Buckle, Double loop.....T. W. Porter
Buckle, Look.....T. W. Porter
Buffing machine.....A. J. Baulig
Building block and forming same.....F. Aaranson
Building construction.....J. Grasso
Bulb shield and operating means therefor.....A. Loest
Burners, Time controlling apparatus for.....H. E. Dole et al.
Burning finely-divided fuel.....D. J. Irish
Burning finely-divided fuel, Apparatus for (2 pats.).....D. J. Irish
Cable grips, Apparatus for making.....H. A. Havens
Calculating machines, Clearing mechanism for.....F. H. Bickford
Calculating machines, Return-to-zero device for.....W. Angustin
Can-forming machine.....R. G. Clark
Can heads, Machine for making and inserting paper rings in.....E. N. Mrozinski et al.
Can tester.....S. Tevander
Cans, Hermetically closing filled preserving.....F. Rudolph
Canoes, boats, &c., Buoyancy device for.....U. R. Miller
Caplet.....R. B. Benjamin
Car annunciator or station indicator.....W. G. Billerman
Car door (2 pats.).....P. C. Merker
Car door, &c., fastening means.....P. C. Merker
Car-door-operating mechanism.....C. A. Lindstrom
Car doors, &c., Stay-chain-attaching device for.....P. C. Merker
Car, Monorail.....H. W. Brown
Car-platform-buffing mechanism.....C. T. Westlake et al.
Car roof.....J. J. Hoffman
Car roofs, Saddle block for.....H. Pries
Car underframe.....B. Magor
Car-wheel flange, Renewable.....F. W. Johansen
Carbureter.....J. S. Goldberg
Carbureter for gas and gasoline engines.....R. P. Faries
Carbureters, Air-drying attachment for.....F. W. J. Goersch
Card case.....H. B. Worthington
Card holder.....W. McKinnon
Carding engines, Means for dressing or re-setting and grinding the teeth of licker-in or taker-in rollers used in.....J. Dickson
Carpet beater.....F. C. Kummerow
Carriage, Collapsible.....C. S. Spofford et al.
Carrying case.....C. Spaulding
Carrying case and display device, Combined.....B. H. Babbitt
Cart, Self-loading.....N. L. Goodwin
Casters, Leg-mount for.....H. A. Palmer
Casting metals, Manufacture of molds for.....C. J. M. Bohl
Ceilings and walls, Dowel casing for fixing in.....W. Schmidt
Chain mesh, Machine for making.....W. H. Eynon
Chain, Wire.....D. McGregor
Chain wrench.....W. H. O'Neil
Chains, Apparatus for eliminating initial stretch of drive (2 pats.).....E. F. Morse
Change-giving apparatus.....S. Chiger
Chimney holder.....B. J. Schwendt
Chuck, Spring.....W. M. Moseley
Churn.....A. Gwizdala
Churn.....E. T. Trout
Churn indicator, Rotary.....C. M. Carlson
Churn, Rotary double dasher.....D. B. Pate
Cigar box, Humidor.....H. M. Kreh
Cigar cutter.....M. L. Robbins
Cigar cutter.....R. A. Kiefer
Cigar moistener.....F. O. Havener
Cinnamic aldehyde ozonid.....W. J. Knox
Clamp.....A. Anderson
Clamp.....G. E. Fritts
Cleaning articles, Machine for.....C. A. Matson
Clipper.....N. Accisano
Clipper, Rotary.....E. G. Kesling
Clock.....G. Kern
Clock attachment, Alarm.....R. P. Packard
Clock, Keyless.....C. H. Bell
Cloth-working machine.....G. H. Wiemann
Clutch.....O. Smith
Coal for the separation of slate therefrom, Apparatus for treating soft or bituminous.....W. S. Ayres
Coal-handling apparatus.....F. F. Joseph
Coal or the like, Treating soft or bituminous.....W. S. Ayres
Cock, Gauge.....W. Beach
Code-forming device.....C. G. Burke
Coffee grinder.....W. F. Stimpson
Collars, cuffs, &c., Machine for folding.....B. W. Tucker
Collar-fastening device.....F. A. Glasgow
Collars, &c., Machine for folding (3 pats.).....B. W. Tucker
Combination lock.....M. A. Mosher
Commode-pan structure for tilting beds.....H. E. Brown
Composing machine, Typographical.....J. R. Rogers
Concrete-block machine.....J. Cathriner
Composition of matter and preparing same.....H. A. Gardner
Compressor, blower, and pump, Rotary.....C. G. Curtis
Concrete construction, Form work for.....R. Anderson
Concrete curbing and the like, Metallic guard for.....C. W. Denny
Concrete mixer.....H. Q. Maurino
Concrete railway tie.....R. T. Bagby
Concrete-reinforcing bars, Support and tie for.....G. R. Schoenthaler
Concrete structure and making same.....J. B. Marsh
Concrete tile for building construction.....L. D. Harter
Condensing apparatus.....R. T. Hapgood
Conductor post.....C. Schuster
Connecting device (2 pats.).....F. H. Chapman et al.
Connector.....W. P. Hammond
Controlling device.....P. H. Zimmer
Convertible chair.....I. Rheinstrom
Convertible motor and pump.....C. F. Buckland
Conveyer.....M. U. Bernheim
Conveying apparatus.....J. H. Gilman
Cooker.....R. W. Ryon
Cooking appliance.....A. L. Sykes
Cooking utensil.....G. W. Blodgett
Cord adjuster.....J. P. Tarbox
Corn, Drying.....C. W. Stanton
Cotton compress, Round-bale.....S. H. Dunlap
Cream separators, Adjustable standard for.....W. H. Rinehold
Cuff pins, Pin tongue for.....W. W. Williams
Cultivator.....J. G. Frederick
Cultivator.....R. Dinse
Cultivator attachment.....J. J. Gage
Curtain and shade-roller supporter.....A. Kalosky
Curtain fastener.....A. H. Greenebaum
Cutter and shredder.....H. M. De Line
Delivery device.....A. B. Dick
Dental handpiece mirror.....W. H. Bittman
Dental massage implement.....M. Pounder et al.
Detinning.....F. von Kugelgen et al.
Dish-washing machine.....L. Strimban
Disinfectant device.....J. Gilson
Display apparatus, Electric.....J. P. Naylor
Display stand.....B. Rosenberg
Distilling apparatus.....C. E. Molesworth
Divan and couch bed, Combined.....A. E. Ireland
Door check.....E. M. Erdmann
Door closers and the like, Detent mechanism for.....A. A. Page
Door closure.....J. Weiss
Door-controlling means.....H. G. Voight
Door, Grain.....O. J. Miller
Door lock.....K. N. Cather
Door, Sidewalk-pavement.....F. O'Brien et al.
Doors and the like, Metallic structure, such as.....H. F. Parish
Doorway, Device for shifting article through a narrow.....R. H. Anderson
Draft-rigging, Tandem spring.....J. F. O'Connor
Drafting instrument.....W. G. Classon
Drag, Road.....D. W. Anderson
Drier.....A. Di Domenico et al.
Dry-cell battery.....W. Broad
Drying fibrous materials, &c., Apparatus for.....F. Stone
Drying rack.....E. O. Strand
Drill.....W. F. Trotter
Drills, Supporting arm for radial.....W. T. Sears
Dust collector.....U. Wedge
Dyeing apparatus, Yarn frame for.....B. A. Parkes
Egg-cleaning machine.....H. M. Feddersen
Electric conduits, Distributing box for.....C. E. Van Duzer
Electric-light-cabinet, Folding, portable.....C. F. Reuter
Electric-light socket.....W. Breidenbach
Electric lighting, Receptacle and conductor for.....J. S. Crossley
Electric machine, Dynamo.....A. M. Gray
Electric machine, Self-regulating dynamo.....C. A. Vandervell et al.
Electric switch.....B. L. Bronson
Electric switch.....T. E. Barnum
Electric switch.....G. W. Goodridge
Electric-switch device.....C. J. Klein
Electrical control apparatus.....J. A. Rey
Electrical switch.....W. L. Bliss
Electrically-driven drill.....W. F. Trotter
Electrode and making same, Storage-battery.....H. C. Hubbell
Electrodes, Retaining envelope or cover for storage battery.....E. W. Smith
Electrotype-trimming machine.....W. H. Wohlberg
Elevated carrier.....A. D. Hadsel
Elevator.....R. B. Renner
Embossing plates, Manufacturing.....H. P. Thompson
Embroidering machines, Counterbalancing mechanism for.....M. Schoenfeld
Embroidering machines, Elevating device for.....M. Schoenfeld
Engine.....L. W. Noyes
Engine sparking plug, Explosive.....H. D. Pomije
Engine starter.....C. E. Kells, Jr.
Engine-starting mechanism, Explosive.....P. B. Belches
Engines and the like, Sparking device for gas.....J. E. Seeley
Envelope fastener.....W. J. Norris
Excavating machines, Means for supporting and moving.....C. W. Rood et al.
Expandible mold.....C. E. Maggard
Explosion guard (2 pats.).....F. O. Hoagland
Explosive engine.....S. A. Rhodes
Extension table.....L. Sarkoze
Eye and hook former.....A. J. Newton
Eyeglasses.....G. H. Chapel
Fabric, Treatment of continuous sheets of plastic.....W. E. Fuller, Jr.
Fastening device.....F. B. Stirkler
Feed regulator.....J. W. Cornelius
Feeding mechanism.....W. E. Clausseu
Fence post.....C. Colvin
Fender.....E. Darnell et al.
Fertilizer, Method of and apparatus for recovering the by-products in the manufacture of.....S. C. McGrath
Filaments, Manufacture of electric.....C. A. von Welsbach
File or binder, Automatic.....K. Uhlig
Filing appliance (2 pats.).....H. J. Hick
Filling machine.....H. M. Smith
Fire escape.....J. J. Quinn
Firearm.....G. S. Lewis
Floor jack.....A. Kraemer
Fluid compressor, Elastic.....C. G. Curtis
Fluid cooler.....G. Viney
Fluid separator.....G. A. Orth et al.
Fly catcher.....J. A. V. Ziefeldt
Folding table.....T. J. McKell
Food from whole grain, Manufacture of an easily digestible.....C. Mauterer
Footwear, Ventilated.....C. Loffler
Forming machine.....G. H. Petri
Fruit or vegetable feeding machine.....B. C. Coons
Fuel saver.....J. T. McKee
Fume-condensing apparatus (Reissue).....W. R. Heslewood
Furnaces, Clinker grinder and discharger for.....O. C. Woolson
Furnaces, Fire-arch for.....J. Rosborough
Furnaces, Muffle for reduction.....A. Roitzheim
Furnaces, Spout for ore-smelting.....C. C. Benton
Furniture, Article of.....G. Hall
Fuse or cut-out, Electric.....B. M. Walpole
Fuse tube, Refillable.....G. Fisher
Gauge for testing tapered holes.....H. C. Moulton
Game apparatus.....S. A. Vinton
Garbage incinerator.....J. Prescott
Garment hanger.....C. E. Slye
Garment, Working.....D. W. Mitchell et al.
Gas igniter.....R. E. Berthold
Gas-lighting device.....F. Street
Gases, Electrolytic cell for generating hydrogen and oxygen.....J. B. Burdett
Gate mechanism, Differential.....E. F. Hurd
Gate stop, Swinging.....G. R. Brennenman
Gear, Controlling device for power-driven.....E. P. Robinson
Gear-generating tool.....E. J. Lees
Gear, Power steering.....E. P. Robinson
Grader, Land.....C. E. Bunker, Jr.
Grading machine, Road.....J. H. and R. G. Osten
Grease cup.....N. W. Cummins
Grinding device.....H. W. Abbott
Grinding machine.....H. T. Shearer
Gun stocks, Shock-absorbing spring for.....C. V. Weathers
Hair clipper, Double-action.....E. E. Appleman
Hair roll or puff.....R. H. Damon
Harvester, Beet.....J. A. Weaver
Harvesting machine, Potato.....W. A. Ruka, Jr.
Hats, Adjustable bandeau for ladies.....B. Wertheimer
Hats, Manufacture of plaited.....K. Tanimura
Hay loader.....M. G. Harris, et al.
Headlight.....C. O. Maphis
Heater and meter, Combination.....H. C. Alger
Heating apparatus, Fire-box of industrial and household.....F. E. Collignon
Heel retainer for shoes.....J. Koppe
Hoist, Power.....A. C. Van De Velde
Hook.....O. Nilson
Horse detacher.....O. Strom
Horseshoe bars, Shaping rolls for.....L. T. Page
Horse rack.....E. D. Dysinger
Hub, Spring.....W. H. Lasswell
Hydrant.....C. L. Howes
Hydrant, Sprinkling and flushing.....F. B. Mueller
Hydraulic lift.....W. T. Harris
Hydrocarbon engine.....W. D. C. Wright
Hydrocarbon motor.....R. Huff
Ice creeper.....F. Duhrkopf
Ice, Device for preventing the accumulation of needle.....A. Mann
Ice-making and refrigerating machinery.....T. Shipley
Igniting device.....G. W. Auringer
Incubator.....H. F. Faupel
Incubator and brooder, Combined.....H. A. Teegarden
Injection of drugs, Gravity and syringe apparatus for intravenous.....M. Abramovitz
Instep support.....M. C. R. Fair
Internal-combustion engine (3 pats.).....K. Steinbecker
Internal-combustion engine.....P. G. Tacchi
Ironing machine.....W. A. Zeidler
Journal bearing.....J. Tichy
Keg or cask.....F. J. Heutteman et al.
Kettle, Heating.....W. H. Gailor
Key chuck, Removable.....V. J. O'Brien
Key duplicating and recording machine.....H. D. Barrett
Kilns and retorts, Heating.....D. S. Jacobus
Knife switch.....C. Schuster
Kinematograph views, also available as an ordinary photographic apparatus, Apparatus for taking.....J. J. Debrrie
Knitting machine.....E. H. Walker
Knitting machine, Circular.....F. Wilcomb
Labeling machine.....A. T. Weiss
Ladle hook.....K. C. Hoxie
Lamp and casing, Electric hand.....E. A. Hoopes
Lamp attachment, Automobile.....G. T. Brazelton
Lamp, Gas.....F. V. Risinger
Lamp lighting and extinguishing device.....O. Jeidel
Lamp socket, Electric.....W. G. Lindemann
Lamp, Street illuminating.....E. S. Newbold
Lamps, Apparatus for producing vacuums in electric.....L. A. Fell
Lamps, Hood for electric.....H. Rithner
Lantern.....F. Deitz
Last, Repair.....D. Rounds
Latch and handle, Combined.....E. L. Watrous
Latch and lock, Combined.....H. A. Hendren
Latch for barn doors, &c.....C. S. Adam
Lathe attachment.....C. F. Athey
Lavatories, Combination supply and waste fixture for.....W. A. Speakman
Lever, Foot.....F. C. Anderson
Lighting, Artificial.....H. E. Ives
Lighting fixture (2 pats.).....F. W. Wakefield
Line guide.....A. C. Ohnsman
Liquid-dispensing device.....H. Huss
Liquid-distributing apparatus.....A. Bowser
Liquid-fuel burner.....T. B. Ferguson
Liquid-fuel burner.....G. E. Denman
Liquid gauges, Air-control device for.....O. C. Ritz-Woller
Liquids and solids and washing or otherwise treating the separated solids, Separating.....J. J. Berrigan
Liquids, Apparatus for the aeration of.....F. C. Yeo et al.
Lock.....A. A. Olson et al.
Lock and latch.....J. Montgomery
Lock, bolt, and latch releasing device.....H. V. Perreault
Locking device.....F. J. Venning
Locomotive, Electric.....G. F. Perin
Loom picker mechanism.....D. H. Clark et al.
Loom shuttle.....W. H. Wilson
Mail-carrying device.....H. H. Meyer
Mail-delivery apparatus.....O. H. Voldness
Mailing board and the like, Drier for use in manufacturing corrugated.....J. F. Crane
Mailing machine, Automatic.....B. S. Molyneux
Make-and-break device.....P. J. Devault
Mantle-cutting machine.....O. Kaufman
Marine safety device.....M. Bouchet
Marker, Land.....R. V. Barry
Match box.....A. M. Knudsen
Matrix-selecting mechanism.....W. E. Brand
Measuring machine.....J. E. Cochran
Melting furnace, Crucible.....W. Melas
Memory ring.....W. R. Heylman
Merry-go-round, Floating.....J. E. Wright
Metal-cooling bath.....W. S. Rogers
Metal product from cast iron, Malleable.....E. A. Custer
Metallic tie.....B. S. Rupp
Metallurgical furnace.....U. Wedge
Milk and product thereof, Stabilizing.....G. W. McMullen
Milk, Holding device for pasteurizing.....A. B. Gardiner, Jr.
Mixer, retort, and digester.....O. T. Zinkeisen et al.
Mixing and sifting machine.....S. L. Harwood
Mold for earthenware.....A. Foltz
Molding apparatus.....M. J. Hewlett et al.
Mop.....A. Fischer, Jr.
Motion-transmitting mechanism (Reissue).....H. B. Ross
Motor-cranking device, Internal-combustion.....W. R. Williams
Music-leaf turner.....M. J. Myszkier
Musical accenting device.....J. F. Kelly
Musical instruments, Bellows-operating mechanism for mechanical.....G. E. Martin
Necktie.....A. Wechsler
Needle, Larding.....C. M. Maisel
Needle, Meat.....C. M. Maisel
Nozzle.....E. K. Hand
Nozzle, Spray.....L. E. Fitzsimmons
Nut.....C. H. Newton
Nut.....E. L. Shivers
Nut and making same, Self-locking.....D. O. Ward
Nut-holding chuck.....W. T. Lingo
Nut lock.....N. Anderson
Nut lock.....G. H. Eckman
Nut lock.....W. M. Phillippie
Nut lock.....S. J. Badcock
Nut, Lock.....A. F. Dickey
Nut, Locking.....W. Schum
Oil burner.....S. B. Salsich
Oil burner.....J. A. Trimble et al.
Oiler for die stocks, Automatically-operating.....H. J. Suelzen
Oiling device for die stocks.....H. J. Suelzen
Oil varnish substitute from animal oils, Manufacture of.....W. Kaempfe
Operating table.....A. P. Nix
Ordnance-adjusting means.....E. H. Frisell
Oven door, Baker's.....M. W. Jacobi
Oven for drying or baking coated metal vessels or other articles.....F. Rudolph
Packing ring.....W. V. Smith
Padlock.....M. Margbanian
Paper and envelope tablet, Combination writing.....J. Anderson
Paper box.....W. H. Cooley
Paper suitable for security checks, Manufacture of.....R. C. Menzies et al.
Paper vessel.....S. W. Moore
Parachute kite.....W. A. Bochau
Pastry cones, Machine for making.....P. C. Flagstad et al.
Paving materials, Manufacturing asphaltic.....C. N. Forrest
Perch, Poultry.....B. R. Bonney
Perforating machine, Single hand.....J. Powers
Perforating machines, &c., Keyboard for.....J. Powers
Photographic negatives, Machine for printing.....F. L. Vermillion
Photographic plate and holder.....G. N. Pifer
Photometer.....H. E. Ives
Piano.....R. W. Scott

- Piano pedal, Mouseproof. R. Bollermann
Piano pedals, Mouse-guard attachment for. H. C. Collier
Picture-taking machines, Film-perforating device for moving. D. C. Law
Pin joint (2 pats.). J. A. Doran
Pinene ozonid. W. J. Knox
Pipe coupling. R. C. Blume
Pipe hanger. L. A. Cornelius
Pipe strap. C. W. Mitchell
Pitman. G. E. Smith
Planter, Corn. H. Christoffersen
Planter, Cotton. D. C. Gramling
Plow attachment. D. O. Welch
Plow-break-pin construction. I. A. Weaver
Plow, Gang. A. H. Rossow et al.
Plow-mounting. I. A. Weaver
Plumb. C. D. McCarty
Pneumatic-dispatch-tube apparatus. J. T. Cowley
Pneumatic-tired wheel. E. Cannes
Pole and lamp post, Combined. C. C. Barriek
Polishing device. W. H. Davids
Portable house. F. Cooper
Potato digger. J. N. Champagne
Pouring pot. W. P. Tarrant
Power-transmitting device. P. B. Laskey
Power-transmitting mechanism, Differential. T. V. Buckwalter
Pressure regulator, Counter. A. Schneider
Printing. G. R. Cornwall
Printing apparatus. T. S. Fox
Printing apparatus, Light. H. Wiegand
Printing machine. N. Meyers
Printing machine, Color. C. F. M. Kroenert et al.
Printing press. E. J. Newton
Printing press. J. L. Firm
Printing-press inking device. H. N. Ellenbecker
Printing-press tripping mechanism. B. F. Upham
Pulley, Tension. H. G. Beede
Pump, Power tire (Reissue). H. D. Waterhouse
Pump, Vane wheel. A. Wachter
Punch and forming press, Combined. J. H. Auble
Punching and forming machine, Sheet-metal. O. J. Groehn
Radiator, Water. T. D. Robinson
Rail fastener. F. E. Spencer
Rail-fastening. A. E. Hogrebe
Rail-fastening. L. Fauque
Rail joint. P. T. Corbin
Rail joint, Reinforced. E. M. Smith
Rail tie. J. Bons
Railway-crossing gate, Electric. A. S. Kobling
Railway crossings, Substructure for. W. P. Day
Railway-rail joint. G. H. Hoelscher
Railway switch. F. Mientus
Railway-switch lock, Automatic. O. Nell
Railway switch or the like. C. O. Anderson
Railway-switch stand. G. Ashton
Railway switches and signals, Apparatus for controlling the operation of. C. O. Anderson
Railway-traffic-controlling apparatus. R. P. Tuttle
Railway vehicle. N. W. Storer
Range, Hotel. B. P. Pollock
Rat trap. M. J. Nunes
Ratchet wrench. T. Finn
Razor. H. O. Michael
Reamer, Expanding. J. B. Steindl
Rectifying apparatus. A. Golodetz
Reflectoscope. T. Graham
Refrigerating apparatus. G. I. Leonard et al.
Refuse burner. J. Prescott
Relay for strengthening weak electric currents. J. Schiessler
Releasing device. J. Irwin
Remedy for syphilis. K. David
Resilient wheel. G. C. Moore
Resistance unit. J. B. Opsahl
Rim-locking device, Demountable. H. C. Ford
Ring-cutting machine. J. Merritt et al.
Ripener and pasteurizer. T. L. Valerius
Roasting apparatus. T. A. Nissinen
Rock drill, Pneumatic. C. J. Smith
Rocker and cradle, Combined. J. Stocker
Roll crusher. R. C. Newhouse
Roll holder. C. W. Smith
Roll-polishing and grinding device. H. K. Collins, Sr.
Rolling flanged shapes. E. E. Slick
Rotary engine. N. T. Hanson
Rotor and bucket. C. W. Dake
Ruler. H. Meister et al.
Sad iron, Self-heating. G. A. Humphrey
Salt and pepper shaker, Combination. J. D. Sehorn
Salt by multiple-effect evaporation, Manufacture of. S. M. Lillie
Sand trap. W. H. White
Sash fastener. J. E. Randa
Sash fastener and lock, Window. J. O. Ford
Saw-dressing machine, Gin and delinter. J. H. Thayer
Sawdust-burning furnace. J. H. Hirt
Scaffold apparatus. W. C. Mangel
Scaffolding. A. Bolognesi
Scale, Weighing. J. C. Barrett
Scraper, Road. H. Warren
Screen. J. Garlinski
Scrubbing device. C. H. Clark
Scrubbing mechanism. J. P. Raymond et al.
Seal. K. N. Cather
Seal lock. R. H. Jones
Seaming machine. F. E. Adams
Selecting apparatus. O. A. Danielson
Separator. H. C. Stahn
Sewing machine. C. T. E. Gould
Sewing machine, Button. H. Corral
Shade fixture, Adjustable window. J. H. Bissett
Shaft-adjusting and driving mechanism. S. M. Langston
Shaft-wiping ring. W. A. Lofland
Sharpening for lawn mowers. G. W. Miller
Sharpening machine, Razor-blade. W. F. Sweet
Shaving machine. H. C. Cloyd
Sheet-delivery apparatus. G. S., Sr., and I. J. Witham
Sheet-feeding apparatus (2 pats.). A. B. Dick
Shield cleaner. F. Klitchko
Shingle and roof construction. A. P. Gosnell
Ship protector. S. H. Wood
Shipping box for automobiles, Demountable. T. Jory et al.
Shock absorber. W. H. Horstmann
Shock absorber. J. H. Neder
Shock absorber. M. Houdaille
Shock absorber for motor cars and other road vehicles. L. M. Brew et al.
Shock-tying device. C. C. Zugschwerdt
Shocking hook. O. C. Anderson
Shoe form, Pneumatic. O. E. Moore
Shoe-polishing device, Reversible. T. A. and L. T. Smith
Show cases, Glass-locking device for. E. Morris
Shuttle eye. J. Faltus
Shuttle-operating mechanism, Electromagnetic. E. L. DeLong
Sieve. M. Harrel
Signal block. C. Mathis
Signal system, Normal danger. L. A. Hawkins et al.
Siren. H. C. Heath
Skee, Skimming propeller. T. C. Moore
Skins on reels, Device for binding the. G. A. Berthold
Skirt supporter. C. J. Whitney
Sled, Propeller. A. Nelson
Sled, Wheeled. F. C. Simon
Slicer, Meat. C. J. McCarthy
Soot blower. G. P. Brown
Sound box. H. C. Miller
Sounds, Transmitting of vocal and other. F. P. Herrguth
Spark arrester. F. E. Young et al.
Speed-indicating mechanism. B. M. W. Hanson et al.
Speed indicator. T. Hooker
Spigot. J. C. Dujat
Spraying apparatus or the like. E. L. Gross
Spring for spring bearings. T. H. Miller
Spring wheel. N. Withers et al.
Spring wheel. J. L. Parker
Sputum cup. E. B. Giertsen et al.
Stall-side construction. H. L. Ferris
Stamp, Dating (2 pats.). T. R. Post
Stamps, Device for applying transfer. C. G. Richardson
Stamps, Machine for applying transfer. C. G. Richardson
Stamps to fabrics, Machine for applying transfer. C. G. Richardson
Staple holder. J. D. Stingle
Stapling machine. E. T. Greenfield
Starting mechanism. H. Meredith-Jones
Stay bolt, Flexible. R. G. Taylor
Steel and concrete building construction. C. H. Snyder
Steel in electric furnaces with basic hearths, Treating. W. R. Walker
Stitch-forming reciprocating elements, Raceway for. J. M. Merrow
Stitch-forming reciprocating elements, Raceway for. W. H. Stedman
Stock fountain or trough. J. Q. Clarke
Stopper extractor. J. J. Charvat
Street indicator for cars. H. Hamilton et al.
Studding and metal yoking-chip for supporting and securing plaster boards together in partition construction, Metallic. M. H. Jester
Superheater coupling. F. Conrath
Support. W. J. Loudenslager
Surfacing and polishing machine. F. P. Huyck
Switch construction. H. A. Benedict
Syringe. C. A. Tyrrell
Table. P. Albano
Tablet. W. K. Waterman
Tabulating machine. H. Hollerith
Tag carrier, License. H. A. Devlin
Tag-marking and forming machine. W. C. Bonthron
Tank. E. A. Hornbostel
Tank lever, Flush. H. R. Kuehner
Tank outlet. V. W. Gould et al.
Tanning hides. G. S. Kimball
Target-practice apparatus. F. Mitchell
Target-practice apparatus. A. A. Adams
Telegraph system, Printing. A. H. Adams et al.
Telephone set. R. H. Manson
Telephone switching apparatus. G. Swope
Threshing machine, grain spout. R. J. Taylor
Ticket, Cash fare. C. S. Norton
Tilling implement, Hand-operated. F. H. A. Bouyer
Tilting furnace. C. P. Turner et al.
Timer, Roller. W. C. Kitchell
Tire. L. Warfield
Tire. J. E. Smith
Tire armor. N. Anderson
Tire, Armored pneumatic. J. E. Lec
Tire holder for automobiles, Rear. F. Lederer
Tire, Pneumatic. S. E. Feige
Tire, Pneumatic. M. A. Dees
Tire protector. J. E. and L. Goodman
Tire protector. L. S. Gill
Tire, Resilient. B. E. Leas
Tire, Resilient. C. Herminghousen
Tires, Protective case for pneumatic. L. Dan
Tobacco pipe. W. L. Wallace
Tobacco pipe. L. Demuth
Tobacco-stemming machine. J. O. Morris
Tool guide and holder. H. O. Brown
Tool, Pneumatic. E. M. Tobin
Torch, Hand. W. B. Sanford
Tov gun. H. B. Palmer
Track-fastening, Metallic. F. Jager
Track-sanding apparatus. O. Johnson
Trawl-towing block. H. I. Cole
Tray elevator. R. B. Renner
Treeing machine. E. E. Winkley
Trolley. J. Pfeiffer et al.
Trolley, Ice-clearing. C. G. Woods
Trolley mount. E. Rose
Trousers. J. B. Morton
Truck, Car. R. B. Kendig
Trunk. R. E. Martin
Truss. J. T. Haile
Tunnel. A. S. Miller
Turbine, Steam. W. G. Dodd
Turn button. J. W. Force
Twister. A. E. Rhoades
Type writers, Word meter for. W. B. Winters
Type-writing machine. W. J. Neidig
Type-writing machine, Cryptographic attachment for. E. H. Hebern et al.
Undergarment, Combination. E. T. Hayward
Vacuum-cleaner tool. J. T. Hope
Vacuum-cleaning apparatus. W. H. Fulton
Valve. R. R. Miller
Valve. C. A. Bahruth
Valve. A. L. Kerbaugh
Valve and lighter, Gas burner (Reissue). J. Holtzman
Valve, Blast-pressure regulating. W. Melas
Valve for air-feed drills, Pressure-reducing. A. H. Taylor et al.
Valve for pneumatic tires, Pressure-relief. W. J. Morrison
Valve gear, Steam-engine. W. H. Smith
Valve, Internal-combustion-engine. W. E. Taft
Valve mechanism. J. T. Underwood
Valve mechanism for internal-combustion engines, Reversing. L. L. Meskimen
Valve mechanism, Lubricator. M. J. Kulla
Valve, Preference. J. W. Gamble
Valve, Water-controlled gas-distributing. T. J. Radke
Valves, Device for removing, replacing and adjusting stuffing box mechanism for. A. J. Pieszak
Vehicle brake mechanism, Motor. J. B. Bartholomew
Vehicle folding top. J. M. Sharrer
Vehicle indicator. J. G. Kraft
Vehicle, Motor. W. G. Thompson et al.
Vehicle starters, Automatic circuit closer for motor. H. A. Menzel
Vehicle top frame. C. H. Craft
Vehicle wheel. A. F. Priest
Veiling. C. S. Gaskill
Veneer-trimming machine. C. E. Ehmman
Vibrator, Master. F. B. Johnson
Violin rest. G. Locke
Wagon, Dump. T. Wright
Wagons, Delivery nose for chute. T. Wright
Wall fixture. T. F. MacEvoy
Wash basin drain pipes, Attachment to. W. Telfer
Washing and bleaching device, Electrolytic. E. Bess
Washing and like machines, Operating mechanism for. G. N. Meves
Washing machine for (3 pats.). G. N. Meves
Washing machine. W. J. Zuill
Waste and vent system. C. S. C. Rock
Water gauge mountings, Safety-lock for. J. R. Gibson
Water heater. F. B. Stiker
Water power or driven wheel. E. E. Paddock
Watering trough, Automatic. J. L. Parkins
Weigher, Automatic. C. L. Bond
Weighing and filling machine. D. A. Flavell
Well-drilling apparatus. H. Braasch
Wheel. E. R. Josselyn
Wheel flange lubricator. W. T. Small et al.
Window. E. Heroux
Window-cleaning device. I. J. Martin
Window, Metal-frame. O. H. Iman
Window screen. W. S. Price
Wire netting, Machine for handling. G. H. King
Wool grease and product thereof, Treating. C. Ellis
Wool-washing machines, Delivery device for. F. G. Sargent
Work board. F. C. Berg
Wrench. W. M. Palmer
Wrench. T. P. MacNeil
Zinc furnace with integral compound resistors and compound condensers, Electric. J. Thomson
Zinc furnace with integral condenser, Electric (3 pats.). J. Thomson
Zinc furnace with integral condenser, Universal electric. J. Thomson

ISSUED FEBRUARY 17, 1914.

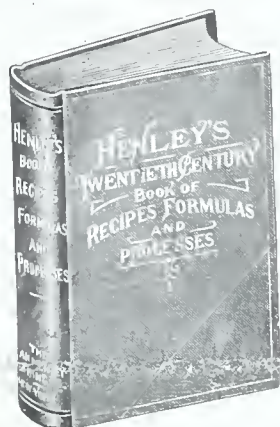
MECHANICAL PATENTS.

- Abrasive compounds, Producing. T. B. Allen
Accordion. P. Petromilli et al.
Acids from crude petroleum, hydrocarbons, and acid residues, Extracting and separating sulpho. G. Petroff
Adding machine. G. M. Nell
Addressing machines, &c., Feeder for. S. C. Cox
Adjustable chair. W. C. Borgert
Advertising device. N. C. Durand
Advertising device. E. S. Jaros et al.
Aerial torpedo. A. M. Shuhany
Aeroplane. D. M. Calhoun
Air compressor, Centrifugal. R. H. Rice
Airships, Suspension of cars of. H. Naatz
Alcohol from waste sulphite cellulose lyes or similar liquids, Removing organic constituents from residues obtained in producing. P. G. Ekstrom
Alkali-metal compounds from silicates containing the same, Obtaining. A. Messerschmitt
Antislipping device. H. S. Berge
Automobile door. W. G. Miner
Automobile lock. J. F. Hicks et al.
Automobile radiator. G. E. Wheeler
Automobile radiator support. R. H. White
Automobile safety device. E. Favary
Automobile self-starter-control device. A. L. McMurtry
Automobiles, Flexible suspension wheel for. O. Allen
Balance detector. E. Johnson
Barrel. E. W. Robinson
Battery-plate separator, Storage. C. C. Carpenter
Battery system, Storage. E. A. Halbleib
Battery-tray connection. J. N. Davis
Bead chains, Machine for making. G. W. Goodridge et al.
Bearing, Double-acting antifrictional thrust. P. Bruhl et al.
Bed. J. A. Pussinen
Bed attachment. F. P. Miller
Bed, Davenport. J. F. Brezinski
Bed, Folding. J. N. Farlow
Bed, Folding. T. A. Killman et al.
Bed, Folding. H. E. Dautrich
Bed, Folding. G. F. Sisbover
Bed, Folding. R. B. Page
Belt fastener. J., Jr., and J. Evans
Bench drill. G. O. Leopold
Bicycle (Reissue). W. Robinson
Binder, Loose-leaf. W. H. Radford
Bisulphites, Stabilizing. L. Nonnet
Blind-slat-adjusting mechanism. G. W. Lancaster
Block machine, Rotary wall. R. S. White, Jr., et al.
Bobbin-holder ejector. F. H. Weitz
Bodies, Means for preserving. W. N. Holway
Boiler safety appliance, Steam. J. B. Kilkenny
Boilers, Spray header for. H. D. Kelly
Boilers, System of cleaning and refilling locomotive. F. A. Gale
Boilers, Water-circulating system for. A. E. Axlund
Boil weevil destroyer. C. P. Chandler
Bolt. W. Gould
Boot and shoe attachment. E. Fuller
Booth, Collapsible sleeping. R. Henry
Bottle-blowing machine. T. C. Duffield
Bottle cap. T. J. Goodwin
Bottle closures, Machine for the manufacture of. A. Bogdanffy
Bottle closures, Manufacturing. A. Bogdanffy
Bottle filling, capping and labeling machines, Automatic feeder for. H. D. Culley
Bottle, Non-refillable. I. D. Kellet
Bottle, Non-refillable. R. L. Le Wright
Bottle, Non-refillable. J. C. Udein
Bottle, Non-refillable. F. M. Crossett
Bottle, Non-refillable. O. Johnson et al.
Bottle, Non-refillable. C. W. Simmons
Bottle stopper, Milk. T. Lamb
Bottle-stoppering means. H. C. Braun
Bowl, Dispensing. S. A. Addis
Bracket arm. F. P. Kobert
Brake shoe. J. J. Morse et al.
Breast supporter. L. Hain
Broom holder. G. E. Henry
Bucket, Hoisting. E. E. Brosius
Buckle for traces, &c. I. L. Edwards
Buffing or polishing wheel. G. P. Keller
Burners, Incandescing element for. D. J. Monosmith
Button, Cuff. C. M. Levy
Button shanks, Forming. W. H. Pruefer
Buttonhole clamp. A. Boyd
By-products of the animal kingdom of more or less fibrous structure, Treating solid. A. H. Henderson
Calculating apparatus. A. B. Herrick
Canister, Coffee. C. Blomstrom
Capsule. M. H. Smith
Car. J. J. Tatum
Car coupling. S. K. Dickerson
Car-coupling uncoupling device. H. M. Ramsay et al.
Car-door-operating mechanism, Dump. R. G. Taylor
Car, Dump. R. V. Sage
Car fender. D. Chew
Car, Mine. J. J. Roby
Car, Motor. D. P. Sanders
Car roof. J. J. Tatum
Car-room attachment. G. Frentzen
Car-seat spring. P. G. Leistner
Car stake. J. Mittermeyer
Car, Stock. W. Kaylor
Car wheels, Apparatus for the manufacture of. J. M. Hansen
Car wheels, Dies for reworking. J. M. Hansen
Cars, Cushioning means for railway. W. B. Lane
Cars, Outside flush door for box. T. F. Barton
Carbureter. C. F. Schulz
Carbureter. H. M. Dalton et al.
Carding engine. P. L. McBride
Carousel. S. W. Brundage
Casein calcium and producing the same. P. Sprenger et al.
Casket handle. E. R. Sargent
Castings, Means for forming undercut. F. E. Canda
Cellose into fermentable sugar, Converting of. P. G. Ekstrom
Cellose, Producing. P. G. Ekstrom
Cementing machine. R. J. Burns
Chain tool. J. A. Anderson
Charcoal, Making. L. Felizart
Chart. C. H. Thurbur
Chart for use in determining minerals and other substances. V. H. McNutt
Checker board. C. C. Lowe
Chemical analysis, Means for use in. J. G. Hume
Chloride, Apparatus for the manufacture of stannic. W. F. Doerflinger
Chuck. F. L. Sessions
Chuck, Drill. L. H. Smith
Cigar-tuck cutter. G. W. Bowman
Cigarette-making machine, Pocket. D. A. Garwood
Cigarettes, Machine for applying mouth-piece material to. P. L. Fowler et al.
Circuit breaker. H. G. MacDonald
Circuit chauger for electric railways. B. F. Hutches, Jr.
Clamp. F. M. Keller
Clamp. A. Bricker
Clasping device for garments and other articles. M. Handelsman et al.
Clutch device, Reversible. E. R. Packer
Clutch device, Roller. E. R. Packer
Cock, Interchangeable self-closing and compression. A. Mueller
Cock, Water. S. Resek
Coin chute. G. A. Long
Collar for sweaters. H. Starr
Colored compounds of the seleno-azn series and making same. P. Ehrlich et al.
Combing machine. J. E. Keeley
Compressor, Centrifugal. W. Kieser
Concrete construction, Reinforced. E. F. Crane
Concrete construction, Reinforcement for (2 pats.). J. O. Ellinger
Concrete fence post. W. R. Kirkwood
Concrete form. A. Neubert
Concrete piling, Incased. W. N. Stevens
Concrete silo. A. J. Stoesser
Concrete structure. L. G. Haase
(Continued in June Number)

The Most Valuable Techno-Chemical Receipt Book Published

Henley's Twentieth Century Book of RECIPES FORMULAS AND PROCESSES

Edited by GARDNER D. HISCOX, M. E.



Price, \$3.00 Cloth Binding \$4.00 Half Morocco Binding
800 large Octavo (6 x 9½) Pages.

Contains over 10,000 Selected Scientific, Chemical, Technological,
and Practical Recipes and Processes, Including Hundreds of
so-called Trade Secrets for every business.

To present here even a limited number of the subjects which find a place in this valuable work would be difficult. Suffice to say that in its pages will be found matter of intense interest and immeasurable practical value to the scientific amateur and to him who wishes to obtain a knowledge of the many processes used in the arts, trades and manufactures, a knowledge which will render his pursuits more instructive and remunerative. Serving as a reference book to the small and large manufacturer and supplying intelligent seekers with the information necessary to conduct a process, the work will be found of inestimable worth to the Metallurgist, the Photographer, the Perfumer, the Painter, the Manufacturer of Glues, Pastes, Cements, and Mucilages, the Compounder of Alloys, the Cook, the Physician, the Druggist, the Electrician, the Brewer, the Engineer, the Foundryman, the Machinist, the Potter, the Tanner, the Confectioner, the Chiropodist, the Manicure, the Manufacturer of Chemical Novelties and Toilet Preparations, the Dyer, the Electroplater, the Enameler, the Engraver, the Provisioner, the Glass Worker, the Goldbeater, the Watchmaker and Jeweler, the Hat Maker, the Ink Manufacturer, the Optician, the Farmer, the Dairyman, the Paper Maker, the Wood and Metal Worker, the Chandler and Soap Maker, the Veterinary Surgeon, and the Technologist in general.

Among the Recipes given are:

Bleaching, Etching and Engraving
Recipes for Glass Making, Paper Making
Recipes for Ointments
Mirror-Making Formulas
Paint Making Formulas
Gilding and Galvanizing Recipes
Bronzing, Tinning and Silvering Recipes
Recipes for Adhesives
Plating and Enameling Recipes
Cleaning Processes, Soap Making
Leather and its Preparation
Recipes for Alloys, Recipes for Solders
Photographic Formulas
Shoe Dressing and Stove Blacking Recipes
Rust Preventive Recipes

Recipes for Lubricants and Oils
Recipes for Dyes, Colors, and Pigments
Recipes for Dryers and Inks
Recipes for Artificial Gem Making
Jewelers' and Watchmakers' Recipes
Household Formulas
Waterproofing, and Fireproofing Recipes
Recipes for Cements, Glues, Mucilages
Recipes for Fireworks
Alcohol and its uses
Recipes for Essences and Extracts
Dentifrice, Cosmetic, and Perfume Recipes
Tanning Recipes
Metallurgical Formulas
Hair Restorers, and Depilatories

And many thousands more—Equally Important in the Arts and Manufactures

Address: THE INVENTIVE AGE Publishing Co., Washington, D. C.

A GREAT BARGAIN \$1.75 Value for \$1.00

One Year's Subscription for McCall's
Magazine, Any 15-Cent McCall
Pattern you may select, One
Year's Subscription for
The Inventive Age.

ALL FOR ONLY

\$1.00



McCall's Magazine

Is a large, artistic, handsomely illustrated hundred-page monthly magazine. It contains sixty new Fashion Designs in each issue. Every woman needs it for its up-to-date fashions, entertaining stories and complete information on all home and personal topics. Over one million subscribers. Acknowledged the best Home and Fashion Magazine. Regular price, 5 cents a copy. Worth double.

McCall Patterns

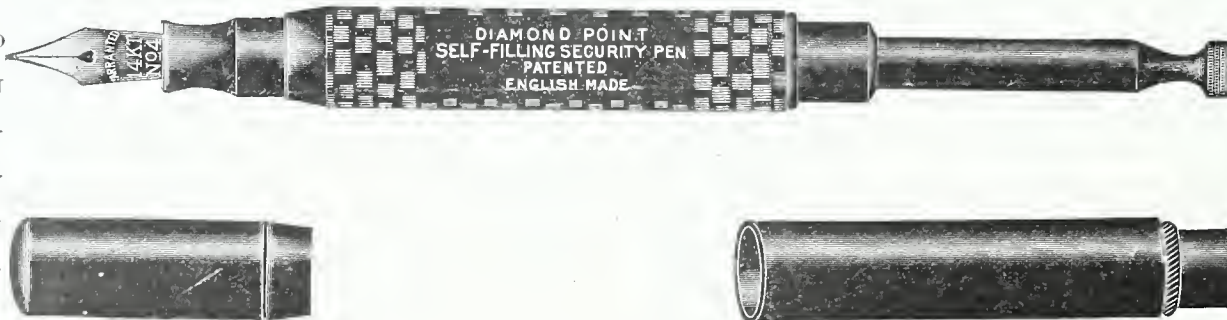
Are so simple you cannot misunderstand them. Absolutely accurate. In style, irreproachable. You may select, free, any McCall Pattern you desire from the first number of the magazine which reaches you. Regular price, 15 cents.

The Inventive Age.

A journal of manufacturing industry and scientific progress. The indispensable paper for patentees. Contains matter and information not found elsewhere. Regular price, \$1.00 per year.

The DIAMOND SELF-FILLING AND SELF-CLEANING Fountain Pen.

IT IS AWAY AHEAD
OF ANY OTHER PEN
MANUFACTURED BE-
CAUSE OF ITS SELF-
FILLING AND SELF-
CLEANING FEATURES.



No Soiled Fingers.

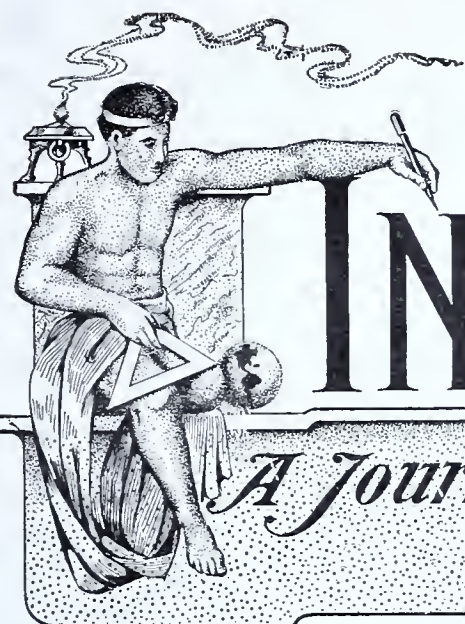
No Lost Time.

Price \$2.00.

Including one year's
subscription to "The
Inventive Age."

Address: INVENTIVE AGE PUB'L. COMPANY, WASHINGTON, D. C.

SEND FOR OUR FREE CATALOGUE OF BOOKS FOR
INVENTORS AND MECHANICS.



The INVENTIVE AGE

A Journal of Manufacturing Industry and Scientific Progress.



VOL. XXVI. No. 6. }

WASHINGTON, D. C.---JUNE, 1914.

{ SINGLE COPIES 10 CENTS.
ONE DOLLAR A YEAR.

ELECTRIC RAILWAY FOR PARCELS POST.

By FRANK C. PERKINS.

THE accompanying illustrations show the operation at Cambridge, Mass., of a most interesting automatically controlled electric railway system for carrying parcels post mail sacks or merchandise in tunnels or upon the surface. It is stated that this electric railway was designed to provide a means of underground or surface transportation which will have a larger capacity than a pneumatic tube. The system is automatic in its control, and after a car or train is started, it maintains a constant speed regardless of grades or curves. Before the train is started a mechanism is set on the first car, which indicates at what station this train is to stop.

On approaching the station this indicating device causes the train to switch off the main track to a siding which the station is located. The train quickly and positively stops itself when in the station, by mechanism which is shown in the following photographs.

This system can be of any desired length, and the size of the cars and the dimensions of the tunnels through which they run may also be varied in order to provide for the different kinds of service. It is particularly suited for use under conditions where pneumatic tubes would be of insufficient capacity, or where a trolley system of the usual type with attendants on the cars would be too large.

The plant illustrated in the photographs is complete in every detail, and for demonstration there was built into it the maximum grades and curves which are found in actual construction. A portion of the railway is enclosed in a cast iron tunnel. This is the standard form of construction when the tunnel can be laid in an open trench. The balance of the railway is of skeleton tunnel construction, which form is used where the railway runs upon the surface, or where two tracks are laid in a single concrete or brick tunnel.

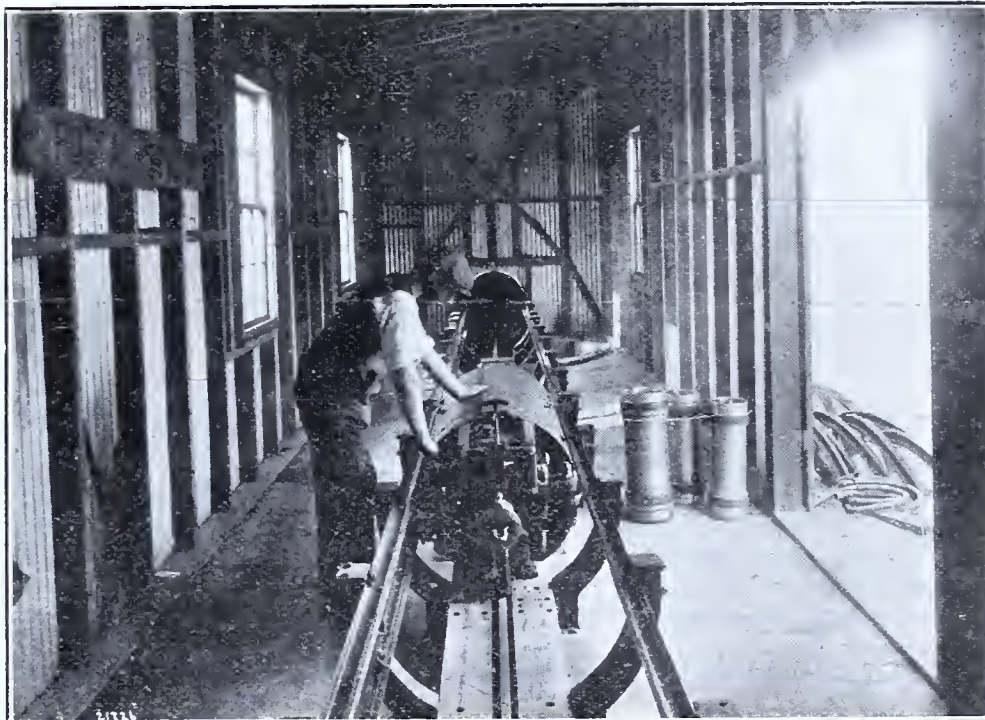


FIG. 1 —STARTING A CAR

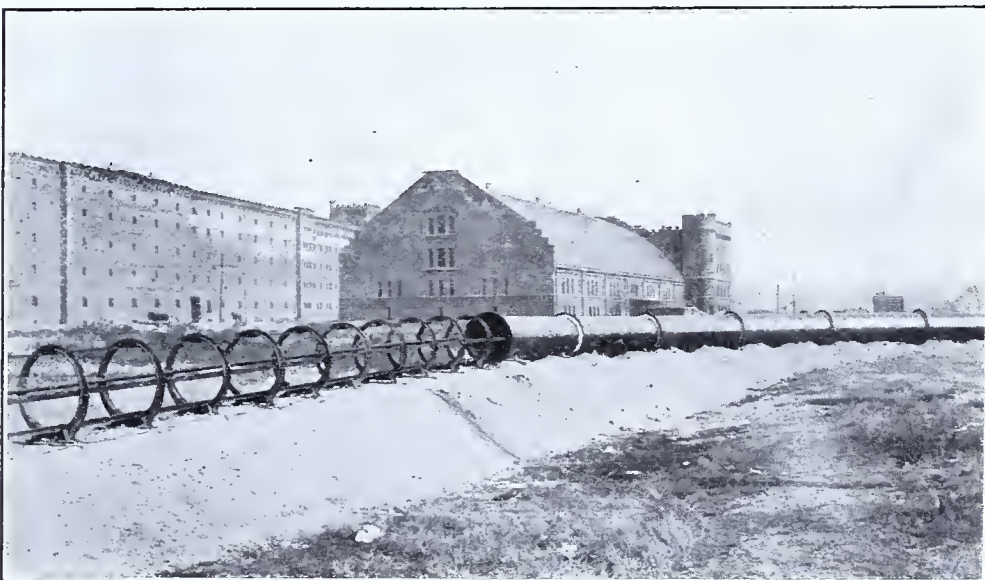


FIG. 2.—LOCATION OF TRACK.

At the plant there is a small house in the center which represents a station containing the automatic mechanism for stopping and starting the cars, the

power machinery for operating the system, the turntable for switching cars onto sidings, and instruments used in experimental work.

Cast iron water pipe is used as a tunnel; for the rest of the circuit a skeleton tunnel construction is used, which enables the car to be seen as it travels around. The length of the circuit is 1,534 feet. While the cars enter the station at one end and depart at the other, this is, of course, only one of several possible arrangements. A station can be arranged to have the cars enter and leave at the same side by running around a loop, or by means of a switch and an electrical reversing device on the cars, it is made possible to run them in either direction.

There are curves in the tunnel with a radius of fifty feet, which is sufficiently short to allow them to be laid in most city streets where the tunnel has to turn a corner.

This system is in reality a miniature electric railway, for storage and repair tracks, turntables and terminal facilities are required, as in a full size installation. The terminals are necessarily located in building basements, both because of the room which they require, and in order to give easy access to the tunnels which are located beneath the surface of the streets.

It will be seen that the track consists of four rails, viz: a bottom rail on which the cars run, two side rails to guide the cars and a light top rail that is insulated and serves to conduct the electric power to the cars. This arrangement of rails allows the cars to run at full speed around curves without danger of leaving the track.

A portion of the track is supported on trestle work in order to make an artificial grade, both ascending and descending. The highest point of the grade is where the track makes a horizontal curve of ninety degrees. The slope of the track on the trestle is five feet rise in 100 feet of horizontal distance, known as a five per cent grade, and it has the same slope on the descending side. The cars mount this

grade without any apparent change in speed, showing that they could ascend a much steeper grade.

There is also a short section of concrete tunnel made sufficiently large for two tracks, with room for a man to walk between. It is said that generally it would be found advantageous to use two tunnels of cast iron water pipe, but in some cases a single concrete tunnel of larger section might be better adapted to local conditions. The section of tunnel is six feet high and seven feet wide, and the circular hoops that support the rails are in turn supported on knees of concrete.

A concrete tunnel for two tracks is used with two pneumatic tubes suspended from the top of the tunnel. The tunnel also affords ample space for feeder and telephone cables, and when two stations are close together, or several stations are located so that they can be connected on a closed circuit, a single track may be sufficient, but usually two tracks will be required for traffic in opposite directions, especially when the traffic is heavy. In single track construction the cast iron tunnel is always to be used.

Including the trestle and track the total length is 1,534 feet, and the car travels around it at a speed of about 20 miles per hour, requiring about one minute to make the circuit; but this speed can be increased or diminished as desired by power controlling devices located in the station.

A car is quickly dispatched by an operator. There are eight and ten inch carriers that are used in the pneumatic mail tubes. To dispatch a car the operator simply pulls a small lever on the car, which makes connection to the conductor rail located in the station at the side of the track. When the car enters the tunnel, the T-headed trolley at the rear of the car makes contact with the upper conductor rail. The construction of the car is simple, and particular attention is called to the arrangement of the wheels, the main supporting wheels being in the center and the guide wheels on each side. The switch, by which the direction of movement of the car is reversed, is located behind the board that supports the trolley.

There is a turntable used to transfer the cars to and from sidings in stations, or for reversing a car where the incoming and outgoing tunnels are on the same side of the station. The turntable is easily swung from one position to another by hand.

The car is 4 feet long and 25 inches in diameter inside, and externally it is 7 feet 3½ inches long from buffer to buffer. The tunnel through which it runs is 30 inches in diameter, and the cars and tunnels can be made of any size adapted to the material to be transported.

It is claimed that the system is especially adapted to the transportation of mail in sacks between railway stations and large post offices. Mail arriving at one railway station and departing at another could be quickly transported by this means without breaking bulk.

The car is quickly loaded with mail sacks and mounted on the forward end of the car is the electric motor that

propels it. The motor is connected by gears to the forward driving wheel. There is a switch panel where the power is controlled that operates the system, also a chronograph, by which the speed of the car can be measured at each instant as it travels around the circuit. The dynamo that generates power to operate the system is on the floor in the far end of the building.

The adaptability of the system to the transportation of the parcels post and merchandise has been thoroughly demonstrated. It is said that the Post Office Department is now face to face with the problem of transporting great numbers of parcels in large cities, and some such system as is here shown will have to be adopted eventually.

It is pointed out that large department stores will find it advantageous to use this system between the store and warehouse and from the store to shipping points. The car is made entirely of steel, securely locked and offers safe conveyance for the most fragile parcels. The method of bringing the cars to rest when they enter a station by means of skids, as in the roller coasters of the amusement parks, causes such a gradual and uniform retardation of the car, that it stops without the slightest shock. A person can ride in the car without any inconvenience from this cause.

Looking at the skeleton tunnel it will be seen that the rails are held in place by cast iron rings. By placing a gas check on the cars they can be propelled through the cast iron tunnels by pneumatic power, either on the vacuum or pressure principle. The system can, therefore, be readily changed into a large pneumatic tube. A pneumatic system of this size, however, costs more to operate than an electric system, and in addition it is far less flexible, since it is limited in length and the cars cannot be handled under their own power in stations while on sidings.

Photographing Animals Under Water.

Photographs of marine life are popular exhibits for moving picture theatres. A Scotch physician interested in the subject has recently made some successful studies of fish and other aquatic animals that frequent fresh water. In order to get the photographs without disturbing the shy denizens of the lakes and rivers, he built a concrete tank fitted with a window, and mounted his camera behind the latter. By persistence and patience he succeeded in getting a view of an otter engaged in a fish hunt; a penguin searching for food, the picture showing how the bird uses his wings as oars both on the surface and beneath it; water hens, gulls, and herons, etc.

To keep themselves posted in the progress of the arts in which they are interested, inventors and manufacturers should subscribe for the INVENTIVE AGE, which publishes a list of all patents issued each month. The low subscription price and the character of the publication entitle it to the support of all the inventors of the country.

LIVING UNDERGROUND.

IN one of his graphic forecasts of the future, H. G. Wells predicts that the cities of the coming generation will be built largely underground. He pictures thousands of men living and working for months without seeing the sky. To a certain degree this prophecy is coming true in the crowded space upon Manhattan Island. Indeed, experts are already beginning to figure what effect these unnatural methods of life are going to have on the human animal, and how soon the average New Yorker is going to take on the physical characteristics and attributes of the mole.

From a million and a half to a million and three quarters of the residents of New York City, says a recent article in *Popular Mechanics*, spend at least a part of each day underground, and many thousands come to the surface so rarely that the light of day blinds them when they reach it.

According to the best obtainable statistics about 20,000 persons in New York City spend their entire working hours beneath the surface of the earth. These figures include 3,800 employees on the two systems of subways now in operation. They include 4,000 men who are employed digging the new subways. This force will be more than doubled in the near future. Also included are the 1,200 men, most of whom are working several hundred feet below the street surface, driving that wonderful aqueduct which is to carry throughout the Island of Manhattan and over into Long Island the waters that are being brought down by siphon from the Catskill Mountains. Then there are more than 10,000 men and women who are employed in more private enterprises that take them constantly below the street surface.

In New York City men and women struggle for the privilege of going underground. If you don't believe that, take the first opportunity to watch the rush-hour crowds in the New York subways. Then you will see men and women crushed together literally like fish in a sardine box, filling to suffocation the cars that are to carry them between their homes and their places of employment.

On quite ordinary days 1,500,000 persons are accommodated in the New York subways, and the crowds are multiplying week by week.

Men go below the surface to reach the trains that are taking them from that architectural wonder, the new Pennsylvania Station, east and west out of the city. After they have reached the trains they are dropped still further underground, in order that they may pass beneath the bottom of the Hudson and East Rivers.

To get out of New York City by means of the New York Central Railroad or the New York, New Haven and Hartford Railroad it is necessary to again drop down into the bowels of the earth before travelers may start.

Almost every skyscraper in New York—and they are numbered by the

hundreds—adds its quota to the real "underworld" population of the city. Before the greater structures—those that rear their way 30, 40 and 50 stories into the air—are really started, their foundations are sunk far down into the living rock which forms nearly all of the Manhattan Island. In many cases very comfortable apartments are to be found 40 or 50 feet below the street surface, and there families are raised, children grown to maturity without ever having known the comforts of a home above ground.

The machinery necessary for the operation of these gigantic structures cost millions of dollars.

Practically all of the great newspapers of the city have their batteries of presses below the surface of the earth.

In the great hotels of New York the mechanical departments are all far beneath the street surface. These departments are well worth visiting, and in most cases the hotel proprietors are only too glad to permit their kitchens, bakeshops, furnace rooms, engine rooms, and laundries to be inspected. These places ordinarily are the cleanest in the entire hotel.

Then, too, in most of the more expensive hotels the grillrooms are below stairs. On these rooms and in these rooms fortunes are spent by the proprietors and their patrons.

Many of New York's greatest department stores are connected directly with the subways, as are also some of its newer theaters. Last February a family of three from San Francisco, visiting in New York, lived for a fortnight in one of the most expensive hotels in the city, spent most of their time shopping, sight-seeing and theater going, and only once during the entire fourteen days passed into the open air of the outside world. From their rooms in the hotel they were dropped by the elevator to the level of the subway. Through the subway they went to department stores, theaters, restaurants, museums and even to church. When they started for home they went by subway from their hotel to the Grand Central Station and did not get out into the sunlight until their train had well started on its long journey. And this was not on a bet, either.

Nor has New York yet finished boring holes in the ground. At present construction work is under way on a completely new system of subways, known as the Dual System, for which more than \$76,000,000 of contracts have already been let. This is less than one-fourth of the total estimated cost of the new system, which is expected to reach \$347,000,000, of which the city will pay \$150,000,000 and the operating companies the balance.

Within five years it is expected that the Dual System will be completed in all its parts. When completed the rapid transit facilities of the city will have been more than trebled. During the year ended June 30, 1911, shortly after which the construction of the new

system was begun, the existing rapid-transit lines carried 798,281,850 passengers. The new Dual System will have a capacity of upward 3,000,000,000, although it is not expected that such capacity will be demanded immediately upon the completion of the system. The combined trackage of the existing lines (including 7.1 miles of the Hudson and Manhattan Railroad) amounts to 303 miles of single track. To this will be added by the new lines of the Dual System 334 miles of single track, making a new system with 637 miles of single track.



UNDERGROUND LIFE IN NEW YORK.

It is comparatively easy today to build subways, even when their construction involves tunneling under the beds of great rivers. But when the Pennsylvania Railroad tunnels under the North and East Rivers, 97 feet below high tide level, were bored from the New Jersey shore across to and under Manhattan Island and thence to Long Island, there was no engineering precedent for the undertaking.

The tunnels or tubes themselves consist of a series of iron rings, and the installation of every ring meant an advance of 2½ feet. Eleven segments and a key piece at the top complete the circumference, and an entire ring weighs about 15 tons. The cast iron plates, or sections of the ring, have flanges at right angles to the surface,

and it is through these that the successive rings are held together with bolts. The record progress in one day of eight hours was five of these rings, or 12½ feet. Hydraulic rams, placed against the flanges every few inches around the tube, were used to push forward the huge shields with which the tunnels were bored. This type of shield weighed 194 tons.

Longest, if not the largest, of the holes burrowed under New York by human moles is the great water tunnel through which the mountain streams, impounded by the Ashokan dam and brought to the city's edge by the Catskill aqueduct, will be distributed through the five boroughs. There are four distinct types of aqueduct; cut-and-cover, grade-tunnel, pressure-tunnel, and steel-pipe siphon, north of the city line. The city aqueduct, through which Catskill water will be distributed, is circular tunnel in solid rock, 15 ft. in diameter at the upper end and reduced to 11 ft. in the outlying boroughs. From two terminal shafts in Brooklyn, steel and iron pipe lines will extend into Queens and Richmond. A cast-iron pipe, resting on the harbor bottom, will cross the Narrows to the Silver Lake reservoir on Staten Island, holding 400,000,000 gallons. The total length of this delivery system is over 34 miles. The tunnel will be at depths of 200 to 750 ft. below the street surface, thus avoiding interference with streets, buildings, subways, sewers, and pipes. These depths are necessary, also, to secure a substantial rock covering to withstand the bursting pressure. The tunnel is being constructed from 24 shafts, about 4,000 ft. apart, located in parks and other places where they interfere very little with traffic. Through these shafts, also, the water will be delivered into existing and additional pipes.

While the underground development of New York has progressed farther than that of any other city, yet the inevitable tendency, wherever population becomes congested and land values high, is to utilize the subterranean areas for business purposes. In London, where the skyscraper has never found favor, a very marked development downward is now in progress. The new County Hall, which is slowly assuming shape and substance on the south side of the Thames Embankment, is one of the many new buildings in London remarkable for its underground space, and every year sees extensive additions to the underworld of London, where the abnormal demands on the space have evolved the underground man.

Paris, too, has its underground life. Unique among cities in many respects, in none is it so remarkable as in its great sewer system, which for years furnished hiding places for criminals and secret passageways utilized by many for transit between different parts of the city. Now the subways of Paris have become the most popular means of travel in the French capital. There are eight subway lines in all, and their popularity is due to the small expense of traveling, the quick and efficient service, and the convenient system of "change" stations permitting

transit from one part of the city to another for the same price.

Boston and Philadelphia have comparatively short subterranean railway systems for passenger traffic; Chicago has utilized the subsurface area of the downtown district for a remarkable freight subway and is contemplating a passenger subway, and many other cities are beginning to utilize their underground portions for various public purposes. New York, where every inch of excavation must be blasted out of solid rock, has developed the human mole to a greater degree than any of them.

Heat Without Flame.

The idea of a heating apparatus in which coal gas should be burned without flame occurred recently, at about the same time, to an Englishman, Prof. W. Bone, and a German, Professor Schnabel. The principle utilized by both, says *Colliers*, is identical with that employed in certain types of automatic lighters attached to a gas mantle. These consist simply of a platinum sponge, or platinum in fine powder, which has a peculiar faculty for absorbing gas. When a mixture of ordinary lighting gas and air passes through this spongy stuff, the two elements are brought into such intimate contact that they take fire of their own accord. This principle is utilized on a large scale and with a cheaper material to produce flameless heat. It is very well known that the efficiency of an ordinary fire is very low. Coal burned in an ordinary grate does not give off more than 5, or at most 10, per cent of the heat it contains. Even when the coal is converted into gas and burned as a gas flame the efficiency is not great—not over 30 or 40 per cent.

In the system devised by Professor Bone, a mixture of gas and air is forced through a finely porous mantle of some substance, like magnesium, extremely resistant to heat. There is always a slight excess of air, but it is quite extraordinary how small this excess may be, so perfect is the combustion. When under a not very high pressure, the mixture of gas and air is forced through this porous material and lighted with a match about as you would light a gas stove. There is at first the ordinary gas flame, which, as you increase the amount of air, becomes thin and finally vanishes entirely. At the same time the surface of the porous diaphragm begins to glow and soon becomes white hot.

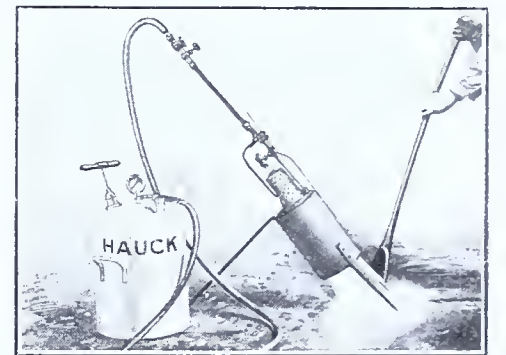
The theory of the flameless heater is exactly the same as that of the gas lighters—that each little molecule of gas and oxygen shall be brought into such contact that they must combine. The effect is that there is not only no flame, but no smoke. The result is almost pure carbonic-acid gas, which is colorless, odorless and harmless.

Actual measurement has shown, it is said, that the combustion in the flameless heater takes place in a layer of about one-eighth to one-third of an inch, and is, therefore, so concentrated that a very small stove suffices to heat a large room and can be carried about in the hand like a lamp.

THAWING EARTH FOR TELEGRAPH POLES.

The accompanying illustration shows an oil burner for use in winter when digging holes for telephone poles in frozen ground, which ordinarily is a very tedious and expensive operation. To do the work just as quickly and cheaply as in warm weather, there has been devised a portable kerosene heater which consists of an oil burner outfit with tank, hand air pump, pressure gauge, hose and burner proper and especially constructed hood.

It may be stated that the burner gives a very large, powerful and intense flame and by using the hood, confining the flame to the ground on the spot where the hole is to be dug, the frost can be taken out in a very short time at a minimum cost. By using this kerosene heater the poles can be set in just about the same time in cold as in warm weather. The earth can be put back in undisturbed condition and there is no necessity for retamping the soil around the poles.



THAWING APPARATUS AT WORK.

It is said that the New York Telephone Company has utilized this system to great advantage, as any laborer can easily operate this device and it can be carried by one man. It is also used for other heating operations, such as dressing tools, straightening, bending pipe or bars, brazing and soldering.

Electric Power from Artesian Wells.

Not only have natural supplies of water, streams and the like, been harnessed to yield hydro-electric power, but artesian wells are being adapted to the same purpose. In Queenstown, Australia, there is a basin where the supply of artesian water is so large that there are hundreds of wells near each other. These are intended for irrigating the land, etc., but the pressure of water is so great that some are employed to run machinery. One jet develops, theoretically, 6,500 kilowatts, after allowing for transportation. Turbines and dynamos have been installed, and a town nearby is lighted from this source.

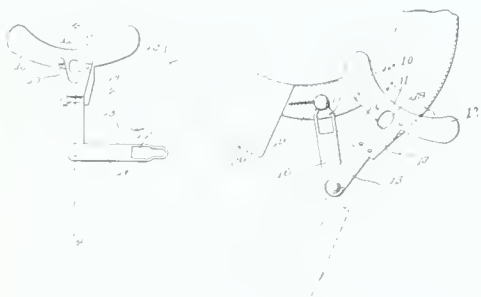
THE INVENTIVE AGE contains sound advice to inventors and patentees. For lack of such advice many have lost money. Subscription price, one dollar a year.

CLEVER NEW PATENTS.

Necktie Attachment.—Game Board.—Life Boat.—Fountain Brush.

Necktie Attachment.

Thomas J. Blagg, of Boise, Idaho, has invented an attachment for made-up neckties, which is very simple and efficient, and can be manufactured at a low cost. In the accompanying illustration the figure to the left shows the attachment separate from the tie, while the figure to the right indicates how the device is applied to a tie and the manner in which the latter is manipulated in fastening the tie to the collar. Referring to the drawing, 10 designates a plate of the ordinary shape having the curved wings 12 which are adapted to be inserted beneath the turned-down ends of the collar. The attachment proper consists of a metallic plate 13 secured to the plate 10 and having a bifurcated end straddling the opening which receives the head of the collar button. A link 16 is pivotally mounted at the lower end of the plate 13, and is provided with a slot 17 which decreases in diameter toward the outer end.

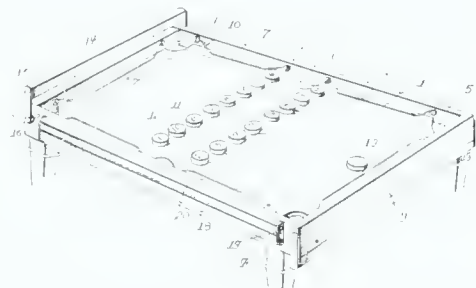


Assuming that the attachment has been secured to a tie of the four-in-hand type, the manner of applying the necktie to the collar is shown in the figure to the right. The link 16 is pulled laterally away from the necktie, and its slot 17 engaged with the collar button. The tie is then rotated on the link 16, and one of the wings 12 of the plate 10 inserted beneath one of the folds of the collar. The tie is then rotated in the reverse direction so as to bring the other wing beneath the other fold of the collar. When both wings are in position beneath the turned-down ends of the collar, the tie is pressed inwardly, causing the head of the collar button to be received by the opening 18 of the plate 10. By this construction a tie may be positioned on a collar and the wings disposed beneath the folded ends without disarranging the folds of the tie, or bending the ends of the collar. When properly placed in position, the tie is held securely on the collar and in contact with the neckband, and may be readily removed without in any way disarranging the collar, and without the hands of the wearer coming into contact with the same.

Game Board.

Oscar P. Breithut, of Portland, Ore., has invented a game board apparatus, by means of which a highly interesting game may be played resembling, to a certain extent, the games of billiards and pool. Referring to the illustration the table is shown supported upon legs, and with its playing surface pro-

vided with corner pockets 5 and side pockets 6. A cushion in the form of a resilient wire 7 is applied to each of the side and end rails of the table. The game pieces 11 are in the nature of flat-sided circular disks, sixteen in number, each of the disks having upon its upper face a numeral denoting its value as a game piece. In addition there is another disk 13 which in size and shape corresponds to the first-mentioned disks, and this disk is designed to serve the same purpose as the cue ball in a game of billiards and pool.



In order to prevent the game pieces from jumping the table, guard rails 14 are provided having arms 15 pivoted by means of bolts 16 to the side rails of the table. By this construction the guard rails 14 may be swung down so as to position the rail beneath the lower edge of the end rail of the table.

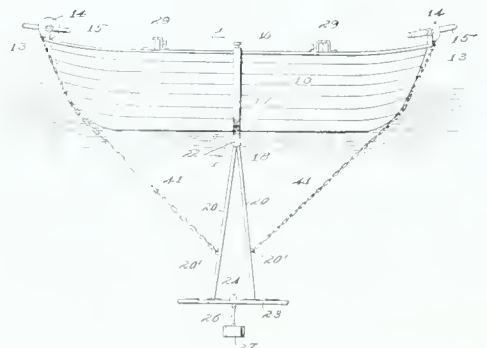
The cue to be used in connection with this game apparatus is one having a spring action, and as it is of ordinary construction it is not shown. In using the game apparatus, the game pieces are arranged in two rows across the table substantially on a line between the ends of the side pockets 6. The game piece 13 is disposed in the position shown, and is propelled by means of the cue against one or the other of the cushions 7, as indicated in dotted lines. If the player is skillful, the game piece 13 in rebounding from the side of the cushion will strike one of the game pieces 11 in the adjacent row and drive it into one of the pockets. Should the player succeed in pocketing one of the game pieces, he is allowed a second shot. If he fails to make the attempted shot, the next player will have an opportunity to display his skill. The operation is continued until all the game pieces have been put into the pockets, when the numbers on the game pieces will determine the scores of the several players.

Life Boat.

John Plover, of Newark, N. J., has invented a life boat which has a number of novel features, its principal object being to suspend a weight from the bottom of the boat to render the same stable at all times. Referring to the illustration, each end of the boat 10, which is of usual construction, is provided with a sheave 14 operated by handles 15. Secured to the gunwale of the boat about midway are a pair of arms 17, which have their upper ends formed with angular bends to engage over the gunwale of the boat, and have their lower ends terminating directly beneath the keel of the boat. Legs 20 terminate at their upper ends in an eye which is pivoted to the meeting ends of the arms 17. The legs 20 are spread apart at their lower ends, and are suitably connected to a plate 23 which is hinged at its center, as shown. A weight 27 depends from the plate and tends to keep the same in a line directly beneath the center of the boat. The plate is provided with flap

valves on opposite sides of the central hinge, the valves on one side opening in opposite directions to the valves on the other side.

The invention is particularly adapted for use with small boats which many times have to encounter high and rough seas, the general aim of the inventor being to render the boat substantially stable at all times. This is accomplished by means of the legs 20 which hold the plate 23 having the flap valves 25 directly in line with the keel of the boat. Chains 41 extend from the legs 20 to the sheaves 24. It will be noted that the legs 20 permit a slight swinging movement both forwardly and rearwardly, but no lateral movement. Should the boat have a tendency to rock or roll, it will be retarded by the plate 23. When one side of the plate is elevated or swings on its pivot, the side of the plate descending will have a practically free movement by the valves opening, while the valves upon the other side will remain closed and retard the upward movement thereof. Should either of the chains become slack, the weight will tend to centralize or dispose the plate directly beneath the keel of the boat.

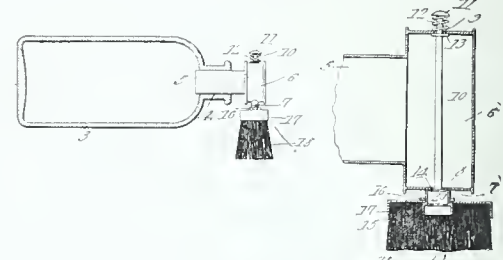


Mounted upon the gunwale are clamps 28 having adjustable bars 29 received therein, which bars are held in adjusted position by the clamps 30. Should it be desired to extend the bars 29, the clamps 28 and 30 are loosened to permit the said bars to be moved laterally over the boat, and in this position the bars will constitute either handholds or means to prevent the boat from colliding with another vessel.

Fountain Brush.

A fountain brush and bottle attachment which may be secured to the neck of an ordinary bottle serving as a cork or stopper therefor, so that the body of the bottle will answer as a handle for the brush, is the invention of Maxey C. Cooper, of Selma, Ala., who has assigned one-half interest to

Otto K. Erhart, of the same place. The illustration represents two views of the device, the one to the left showing the attachment projecting from the neck of the bottle containing the polish, while the view to the right represents an enlarged sectional view of the attachment with a portion of the bottle stopper broken off. Referring to the cut, 3 represents a bottle containing the liquid polish. Within the neck of the bottle the tubular cylindrical portion 5 is adapted to fit tightly, being made of material which is sufficiently resilient to effect a



liquid-tight connection with the bottle neck. This neck-engaging portion 5 communicates with the valve chamber 6, which has openings 9 and 8, at the top and bottom respectively. A valve rod 10 carries valve disks 13 and 14 which close the said openings, and are held in their closed positions by the spring 12. A knob or handle 11 is provided at the upper or outer end of the rod by means of which it may be actuated. Depending from the bottom of the valve chamber is a tube 7, provided with a flared head 15, which in conjunction with the cap 17 serves to hold the bristles 18 in place.

It will be understood that by pressing upon the knob 11, the valve rod 10 is operated so as to allow a certain portion of the contents to pass out of the valve chamber and through the openings 8 and 20 into the bristles. By releasing pressure upon the knob 11, the valve 13 and 14 are closed automatically by the pressure of the spring, so as to stop the flow of liquid.

There are several desirable features present in this invention. The attachment may be secured to a bottle containing liquid polish by simply removing the ordinary stopper and inserting the portion 5 into the neck of the bottle. When this is done, the bottle serves as a handle for the attachment by means of which it may be manipulated to spread the liquid onto the shoe of the operator. When the bottle becomes empty, the attachment may be removed and applied to a new bottle. The attachment is simple and effective and fulfills every requirement of fountain polishing brushes.

PATENTS

Send Your Business Direct to Washington ∴ ∴
∴ ∴ Saves Time and Insures Better Service.

Trade Marks,
Copyrights
and
Designs.

My office is close to the U. S.
Patent Office. Personal attention
given—OVER THIRTY YEARS
PRACTICE. Book "How to Ob-
tain Patents," etc., sent free.

E. G. SIGGERS, 918 F STREET, N. W.,
WASHINGTON, D. C.

LATEST COURT DECISIONS IN PATENT, COPYRIGHT AND TRADE-MARK CAUSES.

GENERAL ELECTRIC CO. et al. v. STEINBERGER.

(District Court, E. D. New York. Oct. 9, 1913. Modification of Opinion, Oct. 16, 1913. 208 F. R. p. 699.)

1. PATENTS—SUIT TO OBTAIN PATENT—FINDINGS OF PATENT OFFICE.

In a suit in equity to obtain a patent under Rev. St. § 4915 (U. S. Comp. St. 1901, p. 3392), while the court must make its own independent findings, even though the testimony is identical with that before the Patent Office, it must in such case treat the findings of the Commissioner of Patents and the Court of Appeals of the District of Columbia as those of tribunals having jurisdiction with respect to matters properly before them, and their determination should not be disturbed unless shown to be plainly and unmistakably erroneous.

2. PATENTS—VALIDITY—SUCCESSIVE APPLICATIONS.

No inference of wrongdoing is to be drawn from the filing of a sole application for a patent by one who had previously united with another in a joint application relating to the same subject-matter, unless the circumstances indicate falsehood or deceit.

3. PATENTS—PERSONS ENTITLED TO PATENTS—DISCLOSURE TO ONE OF JOINT APPLICANTS.

Where two persons filed a joint application for a patent, any disclosure previously made by another to one of the applicants, in the absence of evidence to the contrary, must be presumed to have been made to the other.

4. PATENTS—PERSONS ENTITLED TO PATENT—DISK INSULATOR.

The disk insulator for high power electric lines, having rain shedding annular corrugations, covered by the claims put in interference by the Patent Office between Hewlett and Steinberger, as a result of which patent No. 904,370 was issued to Steinberger, held to have been invented by Hewlett, who, as the inventor first making use of the invention by filing his application, is entitled to the patent therefor based on the counts of the interference proceeding, so limited as not to include a unitary disk insulator with merely nonrain-shedding annular corrugations at right angles to the plane of the disk.

5. PATENTS—DATE OF INVENTION—REFERENCE TO PRIOR APPLICATION.

Where one who united in a joint application for a patent later filed a sole application for the same subject matter, the joint application is evidence of conception of the invention by the sole applicant at the date of its filing.

6. PATENTS—SUIT TO OBTAIN PATENT—CONTENTS OF DECREE.

While the court, in a suit under Rev. St. § 4915 (U. S. Comp. St. 1901, p. 3392), to obtain the issuance of a patent to complainant for an invention patented to another, may construe the claims in issue, it should not alter such claims, as such alteration would interfere with an action under section 4915.

L. S. STARRETT CO. v. BROWN & SHARPE MFG. CO.

(Circuit Court of Appeals, First Circuit. Nov. 14, 1913. 208 F. R. p. 887.)

1. PATENTS—VALIDITY AND INFRINGEMENT—MICROMETER CALIPERS.

The Spalding patent, No. 717,296, for a micrometer caliper, is not invalid as a mere aggregation of old elements operating independently and without change of function, and discloses patentable novelty and invention which entitle it to a reasonable range of equivalents; also, held infringed.

2. PATENTS—SUIT FOR INFRINGEMENT—REFERENCE FOR ACCOUNTING—SCOPE OF INQUIRY.

On a reference for an accounting for infringement, the question whether the patent is infringed by another structure not made by defendant until after the bringing of the suit and not passed on by the court, but with respect to which evidence was introduced, may be presented to and ruled on by the master.

ROESSING-ERNST OO. et al. v. COAL & COKE BY-PRODUCTS CO.

(Circuit Court of Appeals, Third Circuit. Nov. 28, 1913. 208 F. R. p. 990.)

PATENTS—ASSIGNMENT—EFFECT AS ESTOPPEL.

The rule that an assignee of a patent is estopped from denying its validity applies to a corporation afterward organized, and of which he became president, when charged with infringement, but does not apply to a manufacturer, which on the order of such corporation built the alleged infringing machine, except as to that particular machine.

HILDRETH v. LAUER & SUTER CO.

(District Court, D. Maryland. Nov. 15, 1913. 208 F. R. p. 1005.)

PATENTS—VALIDITY AND INFRINGEMENT—CANDY PULLING MACHINES.

The Dickenson patent, No. 831,501, for a candy pulling machine, claim 1, is for a pioneer and basic invention and is neither for a function nor broader than the invention; also, held infringed. Claim 2 held valid but not infringed. The Jenner patent, No. 804,726, also for a candy pulling machine, held invalid as to claim 1, as too broad, but valid and infringed as to claims 7 and 8.

DAVIES v. BOWES.

(District Court, S. D. New York. Nov. 17, 1913. 209 F. R. p. 53.)

1. COPYRIGHTS—INFRINGEMENT—ASSIGNMENT.

Where complainant wrote a short story which was published in a copyrighted newspaper, after which the publishers assigned their rights under the copyright to complainant his rights were limited to those of his assignors.

2. COPYRIGHTS—INFRINGEMENT—WHAT LAW GOVERNS.

Where a copyrighted newspaper published a short fiction story, its rights against an alleged infringer were measured by the statute in force at the time of publication.

3. COPYRIGHTS—INFRINGEMENT—CAUSE OF ACTION—ELEMENTS.

Rev. St. § 4952, as amended in 1891 (U. S. Comp. St. 1901, p. 3406), provides that the author or proprietor of any book shall have the sole liberty of printing, copying, and vending the same, and that authors or their assigns shall have the exclusive right to dramatize their works for which copyrights have been obtained. Held that, in order to obtain relief for alleged infringement of a copyrighted publication, the burden is on complainant to show that the copyright exists and that copying has taken place.

4. COPYRIGHTS—INFRINGEMENT—EXISTENCE OF COPYRIGHT TO FICTION AS PRINTED AS NEWS.

Where complainant, a newspaper reporter, wrote and had printed in a copyrighted newspaper an alleged report of an incident as news which was in fact pure fiction, it was not covered by the copyright of the newspaper so as to entitle complainant, after having obtained an assignment of the publisher's rights under the copyright, to restrain the subsequent use of the purported facts stated therein as part of the basis of a dramatization.

BARRY et al. v. HARPOON CASTER MFG. CO.

(Circuit Court of Appeals, Second Circuit. Nov. 11, 1913. 209 F. R. p. 207.)

PATENTS—VALIDITY AND INVENTION—FURNITURE TIP.

The Alleyn patent, No. 995,758, for an anti-friction tip for furniture to take the place of casters, consisting of a convex disk of heavy metal plate with an upturned strengthening rim provided with prongs to be driven into the bottom of chair legs, etc., was not anticipated by similar shaped nail heads and other devices of the prior art, most of which were used for different purposes, and discloses invention, especially shown by its commercial success, due to its simplicity, cheapness, and utility; also held infringed.

WM. B. SCAIFE & SONS CO. v. FALLS CITY WOOLEN MILLS.

(Circuit Court of Appeals, Sixth Circuit. Nov. 4, 1913. 209 F. R. p. 210.)

1. PATENTS—INFRINGEMENT—ANTICIPATION.

Where the broader view of a claim is necessary to make out infringement, the

proof of anticipation must be considered from the same point of view.

2. PATENTS—CONSTRUCTION—READING LIMITATION INTO CLAIM.

Where a patentee has made an improvement entitled to protection, and in the claim directed to that feature it is described in terms which are capable of a broad construction, rendering the claim invalid in view of the prior art, or of a narrower construction which will preserve to it the validity which it should have had, the courts will give it that narrow construction and so sustain the patent; but where from the specification or history of the application or the language of the claim it is clear that the patentee intended to claim, and the Patent Office to grant, the broader monopoly, which turns out to be invalid, the court will not, for the arbitrary purpose of saving the claim, read into it a limitation which it does not have.

3. PATENTS—CONSTRUCTION—DIFFERENTIATION OF CLAIMS.

The propriety of the rule that proper construction and effect can be given to each claim of a patent only by differentiating it from the other claims, in a normal case where it can be clearly applied, is not affected by the fact that in many cases it is difficult to make such differentiation because of repetition and confusion.

4. PATENTS—CONSTRUCTION—DIFFERENTIATION OF CLAIMS.

When satisfied that a particular claim had for its dominant purpose to secure one particular feature, we should not construe it as specific also in its calls for other elements.

5. PATENTS—CLAIMS—CONSTRUCTION.

In construing a claim in that respect ambiguous, a given element should be implied, if its presence was necessary to distinguish from the prior art or from the other claims; otherwise, it should not operate as a limitation.

6. PATENTS—EFFECT OF PATENT OFFICE PROCEEDINGS.

A statement by the solicitor that the claim was to be confined to the "exact form" held not an estoppel because imitation was not required, and not a persuasive admission because of the context.

6. PATENTS—VALIDITY AND INFRINGEMENT—WATER PURIFYING APPARATUS.

The Greth patent, No. 775,901, for a water purifying apparatus, claim 11, as differentiated from most of the other claims, is not limited to a combination calling for separate compartments in which the lime treatment and the soda treatment are carried on, but has for its principal element the specific battery of independent unit filters described, each of which can be cut off for cleaning without affecting the others, used in combination with a settling compartment and a chemical treating compartment, broadly specified, which may or may not be subdivided. As so construed, the claim was not anticipated and discloses patentable invention; also, held infringed.

VACUUM ENGINEERING CO. v. DUNN.

(Circuit Court of Appeals, Second Circuit. Nov. 11, 1913. 209 F. R. p. 219.)

1. PATENTS—SUIT FOR INFRINGEMENT—DEFENSES.

A patentee cannot defend against a suit for infringement brought by his assignee on the ground that he was induced to part with the patent by unfair representations.

2. PATENTS—CONSTRUCTION AND SCOPE—PRIOR ART—FOREIGN INVENTION.

Under Rev. St. § 4923 (U. S. Comp. St. 1901, p. 3396), which provides that a patent issued to one who at the time of his application believed himself to be the original and first inventor of the thing patented shall not be held void on account of the invention having been previously known or used in a foreign country, if it had not been patented or described in a printed publication, a United States patent issued to a foreigner for an invention made in a foreign country, but not patented there nor described in a printed publication, cannot be considered in the prior art, to limit a patent granted later, but on an application filed while the application for the foreign invention was pending.

A. R. MOSLER & CO. v. LURIE.

(Circuit Court of Appeals, Second Circuit. Nov. 11, 1913. 209 F. R. p. 365.)

1. PATENTS—ANTICIPATION—DRAWINGS IN PRIOR PATENT.

A patent for a mechanical combination is not anticipated by a drawing in a prior patent which incidentally shows a similar arrangement, which is not essential to the first invention, and was not designed, adapted,

or used to perform the function which it performs in the second invention, and where the first patent contains no suggestion of the way in which the result sought is accomplished by the second inventor.

2. PATENTS—VALIDITY AND INFRINGEMENT—IGNITER FOR GAS, OIL, OR VAPOR ENGINES.

The Canfield patent, No. 612,501, for an igniter or spark for gas, oil, or vapor engines, held not anticipated, valid, and infringed.

3. PATENTS—SUIT FOR INFRINGEMENT—RIGHT TO ACCOUNTING—LACHES.

Delay by the successive owners of a patent after the death of the patentee, none of whom were engaged in the business to which it related or made any use of it, in bringing suit for its infringement, of which they had no knowledge, while not constituting such laches as to defeat such a suit, held to bar the complainant from the right to an accounting, where infringements were extensive and had continued for several years.

NOTASEME HOSIERY CO. v. STRAUSS et al.

(District Court, S. D. New York. 209 F. R. p. 495.)

TRADE-MARKS AND TRADE NAMES—UNLAWFUL COMPETITION—FRAUDULENT INTENT—PROFITS.

Complainant and defendants were rival manufacturers, complainant putting out its product under the trade-mark label consisting of the word "Notaseme." Defendants innocently employed the same engraver to prepare a label for them which, when finished and accepted, consisted of the word "Iron-tex," but so arranged that the panels, contrasting colors, etc., indicated that the designer tried to make it so nearly like complainant's label as to deceive purchasers, and defendants, after notice, continued to use the label to complainant's damage. Held, that such use constituted a fraudulent intent to engage in unlawful competition and entitled complainant to recover profits after the expiration of a reasonable time after notice of the infringement.

GLEN ROCK CO. v. AMERICAN CARAMEL CO.

(Circuit Court of Appeals, Third Circuit. Nov. 25, 1913. 209 F. R. p. 619.)

PATENTS—INVENTION—CARAMEL HOLDER.

The Lafean patent, No. 945,788, held invalid; it being merely such an economic mechanical step as naturally followed the growth of an industry, and not such an innovating disclosure as makes an inventive act differ from a mechanical improvement.

A NEW CREATION

WEBSTER'S

NEW

INTERNATIONAL

DICTIONARY

THE MERRIAM WEBSTER

The Only New unabridged dictionary in many years.

Contains the *pith* and *essence* of an authoritative library.

Covers every field of knowledge. An Encyclopedia in a single book.

The Only Dictionary with the *New Divided Page*.

400,000 Words. 2700 Pages. 6000 Illustrations. Cost nearly half a million dollars.

Let us tell you about this most remarkable single volume.



Write for sample pages, full particulars, etc.

Name this paper and we will send free a set of Pocket Maps

G. & C. Merriam Co.
Springfield, Mass.

MECHANICAL INVENTIONS

Patents for which have been procured through the Patent Soliciting Office of E. G. Siggers, Patent Lawyer, Washington, D. C.

Thomas E. Dunbar, Lakeland, Fla. Train Order Delivering Device.—This invention has for its object to provide a train order delivering device equipped with means for protecting train orders from rain and snow, without interfering with the ready removal of the train order holding means by the engineer, or other member of the crew of a train, while the latter is in motion. The train order delivering device includes a supporting bracket mounted on a post, a horizontally movable support consisting of a socket pivotally secured to the outer end of the bracket, a train order holding hoop having a stem removably fitted in the socket, a relatively fixed support mounted on the bracket in rear of the pivoted support, a shield having spaced sides forming a hood for the hoop, and a pivot mounted in the relatively fixed support and carrying the shield.

Thomas R. Beggs, New York City, New York, inventor; Jessie E. Beggs and William A. Murray, Yonkers, N. Y., assignees. Beer Faucet.—It is the aim of the present invention to provide a beer faucet in which there will be no movable parts within the beer passage of the body of the faucet which will allow the liquid to expand within the passage in the opening movement thereof or which will compress the liquid in the closing movement of the faucet. The faucet comprises a body including an upper barrel, a lower spout, and an intermediate tubular portion intersecting the barrel and spout and communicating therewith, a piston operating in the intermediate tubular portion and having means for cutting off communication between the barrel and the spout, and an operating lever fulcrumed on the body and connected with the inner end of the piston for reciprocating the same.

Eugene Brown, Colfax, Washington. Two patents. Colfax Mfg. Co., Colfax, Washington, assignee of both patents.—The invention of the first patent is especially adapted to the handling of grain, which in the far western portion of the United States, is thrashed out in the field and deposited on the ground in bags holding approximately two bushels each, and weighing 130 pounds to 140 pounds apiece. It is customary to load the bagged grain into wagons and to carry the grain to the point of shipment, instead of storing the loose grain in graineries or elevators. The object of the invention is to provide a hoisting apparatus which may be attached to and removed from the frame of a wagon, whereby such bags of grain and other heavy articles may be readily lifted into and deposited on a wagon. The hoisting apparatus comprises in its construction a crane and windlass therefor, a support for the crane and windlass comprising a frame having bearings for the said crane and windlass, wagon engaging clips carried by the frame, and latch levers mounted on the frame in position to engage the wagon in locking relation with the clips.

The second patent relates to a cultivator equipped with means for enabling it to be attached to a tree so as to cultivate the soil around the tree to the desired extent, depth, and distance from the tree, according to the character of the ground, the cultivator ro-

tating in either direction to throw the soil towards or from the tree. Another object of the invention is to provide an orchard cultivator adapted to be adjusted to the trunks of trees of different diameters and capable of operation without interference from the branches of the trees, so that the limbs may be permitted to grow close to the ground as desired. The cultivator includes an adjustable tree clamp, a rotary ring, a cultivator frame having cultivating devices, an adjustable frame slidably mounted on the cultivator frame and connected with the rotary ring, an operating lever connected with the adjustable frame and extending beyond the cultivator frame, and means for fulcruming the lever at either side of the same.

John Carney, Chatsworth, Illinois. Marker Operating Mechanism.—The object of the present invention is to provide a device adapted to be readily applied to an ordinary planter and capable of convenient operation by the driver to raise and lower the marker to clear a stump or other obstruction, and to reverse the marker from one side of the machine to the other when turning at the end of a row. The device comprises in its construction a marker bar arranged to be extended transversely of the line of travel and adapted to be swung in an arc, an operating lever, a connection between the operating lever and the marker including a shaft having a crank arm, a connection between the lever and the crank arm, and a frictional gripping connection between the shaft and the marker bar, said gripping connection maintaining the marker bar normally in operative position with relation to the shaft and permitting the marker bar to swing rearwardly without breaking, should it come in contact with a stump or other obstruction.

Jay Finn, Elmo, Kansas. Poultry Nest.—The present invention is designed to provide a sanitary and practical poultry nest equipped with means for containing a quantity of liquid or other insecticide for destroying chicken lice and other vermin. The poultry nest includes a substantially funnel-shaped receptacle open at the top and having an outlet at the bottom, a removable closure for the said outlet, and a horizontal partition arranged within the receptacle and dividing the same into an upper nest compartment and a lower insecticide compartment, said partition being provided with openings to permit fumes from the insecticide compartment to pass upwardly into the nest compartment.

Charles W. Harris, Beaver Falls, Pennsylvania, inventor; John W. Young, New Brighton, Pennsylvania, assignee. Self-Heating Attachment for Sad Irons.—This patent covers an attachment adapted to be applied to an ordinary sad iron in lieu of the common detachable handle to convert such sad iron into a self-heating sad iron, and capable of adjustment to fit sad irons of different sizes. The self-heating attachment includes a casing comprising side walls adapted to conform to the configuration of the upper portion of the sad iron and consisting of a flexible strip having its terminals adjustably connected at one end of the sad iron, and a top wall fitted on the upper edges of the side walls, means for securing the casing to a sad iron, a handle connected with the casing, heating means carried by the casing, and a deflector located beneath the top wall and interposed between the same and the heating means.

Charles W. Harris and Hermann Buchholz, Beaver Falls, Pennsylvania. Gas Heated Sad Iron.—The object of the present invention is to provide a gas heated sad iron designed for using either natural or artificial gas as fuel, and equipped with a burner adapted to distribute the heat evenly to the ends of the sad iron, and capable of consuming the fumes and of affording perfect combustion, so that only a minimum amount of gas will be used in heating the sad iron. The sad iron comprises in its construction a hollow body having an imperforate inner wall, and provided at the outer wall with an upper intermediate imperforate portion and having spaced outlets located at opposite sides of the intermediate portion, a top plate secured to the sad iron body and provided opposite the outlet openings with depending shields, and a centrally arranged burner carried by and depending from the top plate and located near the outer wall of the body opposite the said intermediate portion.

Louis Hanson, Cottonwood, Idaho. Milking Stool.—The object of the invention is to provide a milking stool equipped with a milk pail support capable of receiving milk pails and buckets of different sizes, and of supporting the same in an elevated position out of contact with the ground and adapted to be readily adjusted to arrange such receptacle at the proper elevation. A further object of the invention is to provide a milking stool of this character adapted to leave both hands of the operator free, and at the same time prevent the milk pail from being kicked over, and also capable of affording a convenient seat of the desired height, and of being firmly supported in an upright position on hilly or uneven ground. The milking stool comprises a vertical standard, a seat having a tubular member slidable on the standard, a spring mounted on the standard and arranged to yieldably support the tubular member and urge the same upwardly, means for securing the tubular member in its adjustment, and a milk pail support arranged at a point between the seat and the lower end of the standard. The milking stool is provided with a prop or brace having a collar adjustably embracing the tubular member to permit the prop or brace to be arranged at different elevations and in different positions.

Andrew E. Lockhart, Jonesboro, Arkansas. Locking Mechanism for Collapsible Receptacles.—It is the aim of the present invention to provide locking mechanism adapted to fasten the lid or cover securely to the body of a collapsible receptacle to protect the contents thereof from petty thefts, and equipped with sealing means for preventing access to the interior of the receptacle without destroying the seal, and indicating the fact that the receptacle has been surreptitiously opened. The locking devices comprise keepers designed to be arranged at the corners of a receptacle, a lid or cover having one of its ends directly engaging the keepers at one end of the receptacle, the corners of the cover being cut off at the other end to clamp the said keepers, transversely slidable bolts mounted on the cover at the cut off end thereof for engaging the adjacent keepers, laterally movable locking bars mounted on the lid or cover, and a longitudinally movable combined operating and locking bar connected with and actuating the said locking bars, and provided at one end with en-

gaging means and having its other end arranged at the transverse bolts and movable into and out of the path of the same to lock the bolts in their extended position.

Joseph G. Reddick, Portland, Ore. Non-Refillable Bottle.—It is the aim of the present invention to provide an efficient valve mechanism constructed of material which will not affect the contents of the receptacle and adapted to be readily applied to the neck of a bottle, after the same has received its original contents, and capable of effectually preventing the introduction of a liquid into it, whereby fraudulent adulteration of the contents of the bottle and the refilling of the same are avoided. The valve mechanism includes a cylindrical valve casing provided at its lower portion with a valve seat and composed of two semi-cylindrical sections having interlocking portions, one of the sections being provided with an integral top wall closing the upper end of the valve casing, said valve casing having an annular series of recesses at the periphery of the top wall, and the side wall of the casing having registering recesses and provided on its inner face with an annular series of vertical guiding ribs extending from the valve seat and spaced at the back from one side of the top wall, said ribs coinciding at their upper ends with and terminating at the bottoms of the recesses of the side wall and projecting inwardly from the said recesses to form guards thereat, and a valve snugly fitting within and guided by the annular series of longitudinal ribs.

John Wyss, Johnstown, Colorado. Harrow.—It is well known that if immediately after planting, rain falls and is followed by warm weather, the surface of the ground crusts and it materially interferes with the natural healthy development of the young plants. Little beets and other plants which, at this stage, are exceedingly tender and weak, curl up under such a crust and die. Also through this crusting of the earth, air and sunshine are entirely shut out from the soil below the crust, and the growth of the plants from this cause is retarded. This evil, namely, the crusting of the soil, has been largely dealt with by the use of harrows and rollers, and while much of a crop is thereby saved, many plants are crushed by rollers or torn out by harrows. It is the object of this invention to provide a harrow or cultivator designed particularly for breaking the crust around young and tender plants, by straddling a plurality of rows and effectively breaking the crust, without disturbing the plants. It is also an object of the invention to provide a harrow of this character which will leave the crust unbroken between the rows, and to enable such a crust to be utilized for preventing the growth of weeds and other objectionable vegetation. The crust breaking harrow comprises a wheel consisting of a body portion having a flat side face, and tapered in thickness from the center to the periphery to form a laterally projecting tapered enlargement at the opposite side face, the tapered side face of one wheel being arranged opposite the tapered portion of a similar wheel to form an intervening inwardly tapered plant-receiving space, said wheel being provided with peripheral teeth, and having an annular flange extending from the flat face of the wheel, which flange is arranged to limit the penetration of the wheel and is provided with exterior transverse corrugations for pulverizing the crust.

NEW PATENTS FOR SALE.

Advertisements inserted in this column for 10 cents a line (about 7 words) each insertion. Every new subscriber sending \$1.00 to THE INVENTIVE AGE will be entitled to the AGE one year and to five lines three times FREE. Additional lines or insertions at regular rates.

FOR SALE—Patent line and hitch strap fastener. Has merit. Sell cheap. Address, W. N. Corbit, Riverton, Iowa. aug

FOR SALE—Prospering business manufacturing Patent No. 1,080,323. Will sell one-half interest in patent and one-half interest in business for \$1,800. Can satisfy skeptic. Address, Box 271, Bradford, Pa. aug

FOR SALE—U. S. Patent No. 1,083,375, electrically warmed foot-rest for boot-blackening stands. Price three thousand dollars net. Address, Thomas Plimley, Victoria, B. C., Canada. aug

FOR SALE cash or royalty—Patent No. 1,001,178. Combination highgrade mechanical tool for universal use. Also other inventions. Address, E. Hood Corson, East Rochester, N. H. aug

FOR SALE—Patent No. 1,003,395. Automatic Fire Alarm. A little wonder of the age. Will sell for cash or cash and royalty. Here is something no hotel should be without. Here you have something that will net some one a fortune. Address, E. A. Gehrke, 427 Little Building, Lincoln, Nebraska. aug

FOR SALE—Patent No. 1,088,545, dated Feb. 24, 1914. "Sure On" Clothes Fastening Device. For particulars address Edward Sears Crumb, Box 6, Charlestown, R. I. jy

FOR SALE—Automatic Shut-Off and drain cock for water pipes in buildings. Pipes cannot freeze and burst if this attachment is used. All offers considered. Address, C. D. Blackman, Box 21, Dodge City, Kansas. jy

FOR SALE—Patent No. 1,061,799, dated May 13, 1913. The simplest and most practical invention of spring wheels for autos and all kinds of vehicles. Address, Benjamin Anderson, Reliance, Wyoming. jy

FOR SALE—The Herr Fender for Street Cars, is the best fender on the market. It has proven its efficiency. Light, durable and no intricate parts to maintain. Write for particulars, William Dickenson, 1526 Dublin Street, New Orleans, La. jy

FOR SALE outright—Patent No. 1,079,059, issued Nov. 18, 1913. Trolley Collector Shoe. Can be used on all electric traveling cranes. For further particulars write to William H. Miller, 37 N. 4th St., Emaus, Pa. jy

FOR SALE—U. S. Patents No. 1,017,456, improvements in puncture proof tires for automobile wheels; and No. 1,054,604, improvements in lifting jacks, and particularly in screw jacks. Will sell cheaply. For particulars address, Wm. Pavlik, Box 132, Bayport, New York. jy

FOR SALE—Patent No. 1,082,602. Flashing. Does away with the old many piece tin shingle. The only water tight flashing. Address, John E. McCarville, 541 3rd Ave. N., Fort Dodge, Iowa. jy

FOR SALE—U. S. Patent No. 1,080,154. Fire Arm Silencer. The most effective one made. No hoax. The real thing. A money maker. Address, H. P. Moore, 89 Whittlesey Ave., Norwalk, Ohio. jy

FOR SALE—Patent No. 1,074,536. Safety feed water controller for boilers. A very necessary appliance for every steam boiler. Patent will be sold outright or on royalty. Address, Fred Wallace, Route 3, Eden, New York. jy

FOR SALE—Patent for splicing cotton ties, with thirteen machines ready for work. Ready demand for spliced ties in cotton belt. Also used for splicing barrel hoops. Great opportunity for the right party. Will sell outright or State rights. J. L. Newton, Social Circle, Ga. jun

FOR SALE—Fertilizer Distributer and Seed Sower Combined. U. S. Patent No. 1,011,071, Canadian Patent No. 142,439. Also spring railroad tie. U. S. Patent No. 1,046,480. Address, Louis Mehlerberger, General Delivery, Detroit, Michigan. jy

FOR SALE—Patent No. 1,061,421. Device to attach to rotary street sweeper for collecting sweepings. Address, John Suszycki, Reedsburg, Wisc. jun

FOR SALE—Patent No. 1,080,663, patented Dec. 9, 1913. Harrow and Cultivator. Cheaply manufactured. For further particulars address owner, Adolph Stavinocha, Engle, Tex. jy

FOR SALE—Singletree Patent issued May 6, 1913. Farmers need them. Can be manufactured for thirty-five cents each. Address, George Cullii, Millstadt, Illinois. jy

FOR SALE cash or royalty—U. S. Patent No. 1,081,417, Smoke consumer for gas and gasoline lights. Prevents blacking and soiling of ceiling and walls. Address, Albert J. Wilkins, Coal Center, Pa. jun

FOR SALE—Patent No. 1,045,045, dated Nov. 19, 1912. Lumber piling machine. Designed for handling lumber, logs, rails, or other heavy material, for transferring from a wagon to a stack or in loading and unloading cars, boats and other vehicles. Is adjustable to accommodate different lengths of material. Address, William Larson, Bonner, Montana. jun

FOR SALE—Patent No. 1,077,957, issued Nov. 11, 1913. A hay scatterer. Address, Peder J. Anderson, 108 S. Morris St., Stoughton, Wisc. jun

FOR SALE—New patented wrench of great merit. Would sell outright or on royalty basis. Instantaneous Wrench Co., Box 311, Grand Saline, Texas. jun

FOR SALE—Patent No. 965,411. Combination cultivator and furrow maker. Also Patent No. 971,218, rotary harrow, outright or royalty. Address, Sigmund Schaller, Haddan, Conn. jun

FOR SALE—Patent No. 1,078,075, dated Nov. 11, 1913. Rail Tie. This rail tie is simple, strong, reliable, economical and ornamental. For further particulars address J. D. Warrell, Deweyville, Texas. jun

FOR SALE Patents—or part interest in locks for public buildings. The only both ways operated single or double door locks on the market: catches either way, or makes push doors. Address, A. M. Hoes, Grand Island, Nebraska. ju

FOR SALE—I have patent pending. Serial No. 787,960, on an automatic lock for the inside of double doors, such as cupboards and the like, in the place of a hook. In opening the first door, the second door is unlocked, and closing the first door the second door is locked automatically. Simple and cheap to manufacture. Write for particulars, Frank E. Davis, R. F. D. No. 2, Payette, Idaho. ju

FOR SALE—Patent No. 1,022,626, dated April 9, 1912. Self-detaching holdback for all single horse vehicles. Works automatically and obviates the wrapping of shafts. When the traces are detached the draft animal is free to move forward from the vehicle. Will sell the patent at a reasonable price, as I am in the lumber business and have as much as I can attend to. For full particulars address, W. A. Hagerman, 897 Queens Ave. London, Ont. ju

FOR SALE—Cash. Patent No. 1,049,242, issued December 31, 1912. Combined mop holder and wringer. The mop will perform any one of the three different operations at will and without any adjustment whatever, either as a mop, mop wringer, or scrubber. Walls and ceilings may be cleaned. Simply remove the scrubber. The mop has been thoroughly tested for seven months and has been enthusiastically received by every woman who has tried one. All offers considered. Address, J. W. Krueger, Litchfield, Minnesota. ju

WANTED.

WANTED—Manufacturer to manufacture "Childs Weaving Frame," made of wood. Newly patented. Address, Frank Thomason, 124 Eufaula St., Norman, Okla. jun

BUSINESS OPPORTUNITIES.

EVERYBODY WANTS SMITH'S
END-LOCK STOVE PIPE.

CHAS. F. LAGANKE

MANUFACTURER OF

HIGH GRADE SPECIALTIES

MODELS AND EXPERIMENTAL WORK,

SPECIAL TOOLS.

Card Building, 118 St. Clair Ave. N. E.,

Correspondence Solicited. CLEVELAND, O.

Electrical Review and Western Electrician

Published weekly from the center of the industry, this publication is in the best possible geographical position to gather and present the most important and interesting news of the entire electrical industry.

SUBSCRIPTION PRICE

U. S. \$3.00 per year. Canada \$4.00 per year. Foreign Countries \$6.00 per year. Sample Copy Free

It is seen and read by practically every buyer of electrical material in this country and abroad. Advertising rates on application.

ELECTRICAL REVIEW PUBLISHING CO., 507 Marquette Bldg., CHICAGO.

A NEW BOOK FOR INVENTORS

Patents and How to Make Money out of Them,

By W. B. HUTCHINSON.

This is the only book published, giving a detailed and full account, from the author's actual experience, of just what steps are necessary from the time the invention is conceived, to the time it is sold, with a clear and concise resume of the law and practice, legally and commercially, of trade-marks and copyrights. It also tells accurately How and What to invent. How to sell Inventions. Place them on the Market. Interest Capital in them, and to successfully Promote a Stock Company. It also contains an index of forms worth double the price of the book to any one interested.

ELEGANTLY CLOTH BOUND.

GOLD STAMPED. \$1.00 Postpaid.

Sent with one subscription to AGE for \$1.50
Or will sell separately.

Address—The Inventive Age Pub. Co.,
918 F St., N. W. WASHINGTON, D. C.

HALF-TONES ZINC ETCHINGS
DESIGNS

LANMAN

ENGRAVING

COMPANY

PROCESS ENGRAVERS, ILLUSTRATORS, DESIGNERS.
TRADE-MARK DRAWINGS
EXECUTED.

"Quality and Speed"

POST BUILDING

Fourteenth St., and Pennsylvania Ave. N. W.
Phone, Main 673

SEND FOR YOUR FREE COPY TODAY

OF

MODERN ELECTRICS & MECHANICS.

The big 148-page illustrated monthly magazine that tells you how to make flying machines, wireless sets, motors, engines, home furniture, models, etc., Invaluable to inventors and everyone who uses tools or is interested in mechanics or electrics. Profusely illustrates and describes these subjects in a style you will easily understand and enjoy.

You should read at least one non-technical magazine and keep up to date on the new wonders and advances in electricity and mechanics.

Fifteen cents per copy on news stands, \$1.50 per year by subscription.

To acquaint new readers with this distinctive illustrated magazine we will send sample copy free on request.

Send for your copy now.

MODERN ELECTRICS & MECHANICS 813 RELIANCE BLDG.,
NEW YORK, N. Y.

ATTENTION INVENTORS!

LISTS OF MANUFACTURERS FURNISHED.

We have increased our facilities for furnishing lists of manufacturers, and now cover every line of industry. The names are obtained from well known directories.

Our charge for each list is one dollar.

In ordering, please state specifically the class of manufacturers desired.

Address: INVENTIVE AGE Pub. Co., Dept. M. 918 F. St., Washington, D. C.

Every subscriber when sending \$1.00 is entitled to a free advertisement, not exceeding five lines, of any patent in which he may be interested. The ad. will be inserted three times.

THE INVENTIVE AGE PUBLISHING Co., Washington, D. C.

I herewith enclose \$1.00 for one year's subscription to

"THE INVENTIVE AGE."

I also enclose ad. for insertion in the (Patents for Sale*) (Want*) column of your paper.

NAME.....

P. O.....

STATE.....

*Please indicate in which column you want the ad. inserted.

N. B.—Remit in the way most convenient.

The Inventive Age

Established 1889.

Published monthly by

THE INVENTIVE AGE PUBLISHING CO.,

National Union Building, 918 F Street, N. W.,
WASHINGTON, D. C.

THE INVENTIVE AGE is sent, postage prepaid, to any address in the United States, Canada, Mexico, Hawaii, and Porto Rico, for ONE DOLLAR a year; to any other country, postage prepaid, ONE DOLLAR AND TWENTY-FIVE CENTS.

Correspondence with inventors, mechanics, patentees, and manufacturers, is invited. The columns of this journal are open for the discussion of such subjects as are of general interest to its readers.

Technical matter is particularly desired. We want practical information from practical men.

THE INVENTIVE AGE is independent.

Special facilities for furnishing cuts of any patented device together with descriptive article. Business specials 10 cents a line each insertion; 7 words to the line. No advertisement less than 25 cents.

Address all communications to

THE INVENTIVE AGE PUBLISHING COMPANY,
WASHINGTON, D. C.

Entered at the Post-office as 2nd class matter.

WASHINGTON, D. C., JUNE, 1914.

SUCCESS A BAR TO DISBARMENT.

In a speech made before the Boston University Law School, Ex President Taft stated that—

"Disbarment proceedings are conducted only against men who are down and out: it is too hard to bring suit against successful members of the bar."

There is unfortunately too much truth in what Mr. Taft has said. Apparently there is a double standard of right and wrong among lawyers—one for those of assured position, another for men less fortunate or prosperous. If a lawyer has succeeded in piling up thousands by transactions that would not bear the light of day, has his name written high on church registers, and even poses as a philanthropist, he is able to obtain immunity by the prominence of his position. But, let some lesser light indulge in a slight infraction of professional ethics, and the full power of both the bench and the bar is invoked to drive the young offender from his chosen profession. This is the popular opinion, and Ex-President Taft voices what is the commonly-accepted belief. Our bar associations which profess to stand guard over the profession and to bring offenders to account have utterly failed to command respect for their fearlessness and lack of partiality. This statement is true no matter where it is read or applied. It is true in New York City, in Washington, and in every other city of the country.

In every profession, and this is true of the legal profession as well, there are always a certain percentage of men who, in their anxiety to gain a competence, are willing to resort to any trick, artifice or any means in order to accomplish their ends. Money getting is their sole aim, and it is of little importance how they acquire it. According to their creed "money is power," and so they acquire the needed influence by accumulating money. It enables them to secure recommendations from high government officials,

which seem to render them immune from prosecution. Bar associations have certain standards of ethics. The poor lawyer of uncertain position is expected to live up to the high standard imposed, but his rich influential neighbor, who has acquired his riches by crooked transactions, is allowed to do pretty much as he pleases.

The application of this to the patent profession is obvious to any one having knowledge of the prevailing conditions. Take the city of Washington as an example. There are five attorneys or firms of attorneys owning their own office buildings in Washington, and of these five, only one of them can be considered a first-class, competent patent lawyer. Of the remaining four the less said about them the better. Their best friends would admit that they have no standing, as attorneys, before the Patent Office, and that in some instances they are personally incompetent to practice patent law and must depend upon paid subordinates. They have achieved their financial success by the adoption of certain methods, which in a more strict administration of the Patent Office would have brought about disbarment.

It is a fact that with the single exception of the disbarment of John Wedderburn in 1897, there has not been an attorney disbarred from the Patent Office who was not already "down and out." In the cases of the few who have been disbarred, the disharment proceedings were brought about because they had appropriated the money of their clients. They may have been driven to this step by poverty, and possibly never intentionally meant to do any wrong, but having appropriated the money in the ordinary course of business, they found it impossible later on to restore it when required to do so, with the result that disbarment followed.

We don't wish to be understood as questioning the propriety of disbarring an attorney under such circumstances. We believe that when an attorney appropriates the money of his client and refuses to return it, he should be disbarred from practice. He has violated the trust reposed in him by his client, and no attorney who has done this should be allowed to practice any longer before the Patent Office. The point we make is that disbarment should not be confined to the few attorneys, who through misfortune or had business management have appropriated the money of their clients. An attorney may in effect appropriate the money of his client when he gives him the wrong advice, or where he misleads his client into applying for a patent.

There is a rule of practice of the Patent Office which reads as follows:—

"The Secretary of the Interior may, after notice and opportunity for a hearing, suspend or exclude from further practice before the Patent Office any person, firm, corporation, or association shown to be incompetent, disreputable, or who refuses to comply with the rules and regulations thereof, or who shall, with intent to defraud, in any manner deceive, mislead,

or threaten any claimant or prospective claimant, by word, circular, letter, or by advertisement, or by guaranteeing therein the successful prosecution of any application for patent or the procurement of any patent, or which word, circular, letter, or advertisement shall contain therein any false promise or misleading representation."

This has been one of the provisions of the rules for several years, and yet it has been violated every day by certain attorneys practicing before the Patent Office. No attempt has, so far as we know, ever been made to enforce the rule. The advertisements, circulars, and letters sent out by a certain class of attorneys are misleading, and were intended to mislead inventors, as to the actual conditions prevailing inside and outside of the Patent Office. It would not be difficult to obtain evidence sufficient to convict half a dozen attorneys for violating this rule, and yet because the offenders have acquired a competence and are able to hire high-priced lawyers to defend them, no attempt has been made to make this rule what it was intended to mean, a menace to unscrupulous and dishonest practitioners. A single prosecution against an attorney of prominence violating this rule would revive it and help to improve the practice. There is nothing before the Patent Office today that demands more instant attention than the regulation of the methods and practices of certain attorneys practicing before the Patent Office. They are violating not only the rule quoted, but every standard of professional ethics, as well as common decency. There is no question but that the courts would stand by the Patent Office in suppressing such professional nuisances.

The reluctance of the Patent Office in the past to proceed with the same vigor against attorneys of conspicuous rank as against those held in common disrepute, has engendered the general suspicion that what Mr. Taft calls "success" carries with it the guarantee of immunity. This should not be. It should not be said of the Patent Office that success achieved in defrauding inventors is a bar to disbarment proceedings.

TIME REQUIRED TO OBTAIN PATENTS.

The very first thing that an applicant for patent wishes to know is, how long he will have to wait before he can obtain a patent. He thinks that it is only a question of examining the application when it will be allowed or rejected, and that will settle the matter. In actual fact, the first action on an application for patent rarely means the allowance of the application. We have no figures to guide us, but we should say from our general knowledge that hardly one application out of twenty-five is allowed on the first official action. The reason is that attorneys in their anxiety to protect the inventions of their clients draw the claims a little broader than the Patent Office is willing to allow, and hence a rejection follows. By the process of amendment and argument which follows, the claims are finally put in

such form as is satisfactory to the applicant and the Patent Office.

The first official action on an application for patent may be received any time from one to five months dating from the day of filing, but the final grant of a patent may not be obtained for many months thereafter. Where each successive amendment or argument requires from one to three months before it is considered by the Examiner, it can be readily seen that a year may roll by before the application has made much progress toward allowance. Indeed, an examination of the Official Gazette shows great diversity of application dates in the patents issued. Take the Gazette of May 19, 1914, and one can see in succession patents issued on applications filed June 10, 1909; April 30, 1910; July 21, 1913; January 21, 1913; September 26, 1913; March 11, 1911; February 2, 1912, and so on.

The Commissioner of Patents in his annual report to Congress said:—

"In conclusion it may be stated that on an average applications are in the Office about two years, and in the vast majority of cases this length of time is sufficient for thorough consideration of the applicant's claims."

The Commissioner did not mean that it took two years to obtain a patent, but what he did mean was that if an application was pending longer than two years, and there was no interference or appeal, that the case was being held longer than was necessary. In other words, that two years was long enough to prosecute an application through the Patent Office unless appeals were necessary or an interference was declared.

We believe that the Commissioner and his able assistants are doing all they can to have applications for patents disposed of more promptly than they have been in the past. We understand that they are urging the examining divisions to avoid trivial objections, and to dispose of the cases as rapidly as possible.

We are informed that requirements of division of applications are under the ban, and that each division of the Patent Office is required to submit a weekly statement of the number of applications in which they have required division. We believe that the Commissioner ought to entertain a few petitions with a view of defining the proper practice on the subject of division. There has not been a decision rendered by the Commissioner of Patents on this subject for many years. Requirements of division in applications are being made along lines which, in our judgment, will result, in many cases, in the inventors being deprived of their just rights. Requirements for division should not be made except where there is a clear line of division as to the inventions. Such requirements are now based upon the technical wording of the claims, and frequently the claims that are alleged to be divisible are not actually so, and if separate patents were granted on the alleged divisible claims, the different patents would be declared invalid by the Courts on the

ground of "Double Patenting." It is not every inventor who can afford to pay out money for appeals. Some attorneys would petition the Commissioner without subjecting his client to a charge, but where an appeal has to be taken, the inventor is necessarily put to the expense of at least ten (\$10) dollars.

The task confronting the Patent Office cannot be accomplished in a year, and yet during the short time the present Commissioner has been in office, scarcely nine months, he has accomplished much in various ways. He has endeavored to instill his liberal views into the minds of Examiners who were deep-dyed in their illiberality. The trade mark practice has been modified to such an extent that it is now both a pleasure and a profit to file an application for trade mark protection. The patent practice is more difficult to amend because there are so many ramifications and details which cannot be affected by either decisions or orders, but we have confidence in the present Commissioner of Patents, and we believe that before he retires, that the patent practice will be so reformed that the abuses and evils which have crept in will be entirely done away with.

Preventing Pipes from Freezing.

One of the most annoying and troublesome things to be met each winter in farm and country life is the question of frozen water pipes. This is especially so in districts where there is no gas line, and where plumbing is unprotected and open.

The following is recommended as the easiest, most inexpensive and surest way to keep the frost off the pipes: Melt an equal quantity of petroleum—vaseline—and of paraffin wax together, and after wiping the pipes perfectly dry, apply with an old brush a thick coat of this mixture while it is hot. An old lamp or torch will easily keep it in a liquid state.

No matter how cold the weather may get the frost cannot penetrate this coat of grease. It has been used on water pipes that ran along the ground unprotected, and not once during the coldest weather did they freeze up or give the least trouble.

Power of Growing Plants.

The ease with which the roots of trees tear up sidewalks and curbs is an illustration of the remarkable force exerted by growing plants. Slow and almost imperceptible in its effect, it is capable of overcoming almost any obstacle. There is a record of a sapling that grew through the hole in a millstone, and carried the stone into the air. In addition to the natural cell pressure of several atmospheres, says a recent issue of *Popular Mechanics*, mechanical hindrance seems to act as a stimulus resulting in incredible strength. A squash, harnessed to a lever in one experiment, succeeded in raising a 5,000 pound weight. The squash itself grew to weigh over 47 pounds, and developed about 80,000 feet of roots in the 80 days of the test. In many instances mushrooms have grown through hard-tar sidewalks, two or three inches thick, and ostrich

ferns have ruptured solid, brittle concrete as if it were putty. Three large mushrooms have been known to raise an eighty-pound flagstone, and a subsequent examination of the plants showed no signs of damage or scars on their tender surfaces. Attempts to reproduce by means of levers the steady pressure by the plants in growing through concrete walks show that a force of 262 pounds is required to break through a walk in ten days by ferns, and 189 pounds in the thirteen days required by mushrooms. A calculation of the area of the concrete surface affected shows that each plant exerted a pressure of from 525 to 750 pounds. Tree roots have been known to raise boulders weighing 18 tons.

Smoke Signals for Aeroplanes.

Something better than wireless telegraphy has been devised for air men. Wireless demands heavy and complicated apparatus, while all that a Boston inventor requires for his system of communication is a device for making puffs of smoke—a long puff for a Morse dash and a short one for a dot. An optical telegraphic system using the dot-and-dash alphabet is the result. The "smoke" employed by the inventor is a cloud of fine black dust, blown into the air by turning the exhaust of the motor into a vessel containing lamp black.

The ordinary apparatus for optical telegraphy requires a mirror, sending the sun's rays to the receiving station by day and those of a sufficiently powerful lamp by night, which involves more or less complicated mechanism, but the new device has recourse to black clouds of smoke of variable size. A small cloud corresponds to a dot in the Morse alphabet and a larger one to a line.

The advantages of this system are its simplicity and the suppression of the considerable motive force necessary in wireless telegraphy, not to mention the possibility of establishing communication between two dirigibles or two aeroplanes in motion. There is nothing simpler, than for one aviator to talk with another 12 or 15 miles away, with the aid of a field-glass. The sole condition is that the aviator shall be moving nearly at right angles to the line joining him with his interlocutor.

This mode of communication is particularly applicable to aviation in connection with artillery. It is well known that nowadays rapid fire batteries operate almost exclusively with masked fire; that is to say, they are mounted in carefully concealed trenches and fire on enemies concealed with equal care. But the aeroplane can search out its adversary very speedily, and it will signal the exact location of the batteries.

What are X-Rays?

Ever since Prof. Roentgen discovered the mysterious "rays" which bears his name it has been a puzzle as to what these rays could be, says a writer in *Collier's*. They seem like a form of light—they give out light under proper conditions. Or rather they cause plates and screens prepared with certain chemicals to become luminescent or fluorescent, as the physicists says, when they are bombarded by the X-rays.

But otherwise they do not (or did not

seem to) act like ordinary light at all. For example, when ordinary light is passed through a prism it is bent slightly out of its straight-line course, and the degree of bending varies with the color—that is, with the wavelength of light. So, when a compound light like sunlight is put through the prism it is split up into all the colors of the rainbow.

Again, ordinary light rays when passed through certain substances like turmaline are "polarized"—that is, only those vibrations which lie in a particular plane get through. And, again, it is possible to measure the "wave length" of ordinary light, even of those waves which lie far above and far below the limits of visibility. But all this was impossible with the X-rays.

On the other hand, as everybody knows, the X-rays are generated when a metal plate in a vacuum tube is bombarded by an electrical stream. It is one of the greatest discoveries of recent years that this electrical stream, this beautiful glow which is seen inside the vacuum tubes, is due to myriads of electric "atoms" or particles which act for all the world like the particles of gas—air, for example. But while the weight and "charge" of these electrical atoms can actually be measured, no such measurement could be made with the "X-rays." And so the puzzle remained.

Very recently, however, some English and German physicists have found substances which react in a very peculiar way to the X rays. Certain crystals, and the rough edges of mica plates and the like, it has been discovered, will act like a glass prism to the rays, so that the latter can now be manipulated much like the rays of ordinary light. And in this way it has been established that the rays are actually like pulses of light. But they are incredibly thin and small. Ordinary light waves are measured in fractions of a meter—very small fractions—to be exact, in millionths of a thousandth of a meter. A millionth of a meter is called a micron, and a thousandth part of this is called a micromicron. The longest visible rays are 700 or 800 of these units in length, and the shortest, at the violent end of the spectrum, are about 500. It is possible to measure ultraviolet rays, which are less than 100 units in length. But no method of measurement has yet been devised which can give any accurate idea of the waves in the X-ray pulses. Probably they are not a thousandth part the size of the smallest of the ultraviolet.

But now that their nature has been determined, now that they can be "refracted" and "polarized" just like ordinary light, it is only a matter of time when marvelous instrument makers and ingenious experimenters will find a way to determine their actual dimensions.

When they do we will have a new weapon in the search into Nature's mysteries: and already researches in this field promise to throw new light upon the structure of atoms and molecules—that is, the structure of that "matter" amid which we live and a part of which we are.

Exchanging Mail on Trains.

A device for the exchange of mail from moving trains has recently been installed on the Coast Line of the Southern Pacific Company, and is now undergoing a six months' service test in the handling of United States mail. The apparatus is the invention of a former Idaho Postmaster, who years ago had his attention drawn to the dangers of throwing mail bags from rapidly moving trains.

The device delivers and collects through the same door and operates from either side of the car, irrespective as to which way the train is traveling, and is now delivering at 20 stations mail bags of all kinds, weighing in some instances as much as 500 pounds, and collecting mail simultaneously, the speed of the trains varying from five or six to sixty miles an hour.

To absorb the shock of the blow in delivering or collecting the mail, which might reach 15 or 20 foot tons on the arm of the standard alongside the track, was the problem the inventor had to solve. This he succeeded in doing with a horn-like receiving arm curved to a diameter of about nine feet.

The standard erected at the depot is equipped with two curved horns overlapping each other at the point nearest to the railroad track, with a delivering arm extending from the standard toward the track, below the horns. To the delivering arm of the standard is attached a ring, and on this is hung the mail bag which is to be collected by the train. Running along the roof of the car is a track, with a delivery arm on wheels. To this delivery arm the mail clerk in the car attaches, by means of a ring, the bag which is to be left at the depot.

The arm is fastened by a chain to a catcher hook, which is placed on the outside of the forward end of the door. When the car door reaches the standard the catcher hook runs through and detaches the ring on the standard, and the ring with the mail bag attached passes along the hook and is deposited on the floor inside the car. At the same time the horn, which is pointed towards the direction from which the car is coming, passes through the ring attached to the bag to be delivered. As this bag swings around the horns, the horns themselves are turned up at an angle of about 45 degrees, thereby absorbing much of the shock of the blow.

The operation of this device not only removes the elements of danger to the mail clerk and the public at the railway stations, but, because the bags remain suspended instead of hitting the ground, prevents wear and tear on the bags themselves and possible injury to the mail.

To test the jarring of the mail bags while being delivered and collected a pasteboard box containing a setting of eggs was placed in a fifty-pound bag of mail. The mail was delivered to the standard at a station, and afterward collected by the train from the standard and delivered on the floor of the mail car, the train moving at 50 miles an hour on each occasion. From these eggs nine chicks hatched out. Since the commencement of the service test a setting of eggs was delivered to the Postmaster at one of the stations, who reports that they were received without any of them being cracked or damaged, the train passing the standard at a speed of over 40 miles per hour.

A CLASSIFIED list of Patents issued during the month appears in each issue of the INVENTIVE AGE. This keeps inventors and manufacturers posted in the art in which they are most interested.—We will send, postpaid, to any address, printed copies of any U. S. patent, with specifications and drawings, upon receipt of 10 cents per copy.—Please give correct data in ordering.—Address.

THE INVENTIVE AGE PUBLISHING CO., 918 F St., N. W., Washington, D. C.

LIST OF PATENTS

ISSUED FEBRUARY 17, 1914.

MECHANICAL PATENTS.

(Continued from May Number)

- Confection W. J. Swartz
 Container, Flexible S. R. Van Patten
 Control system L. Dreyfus
 Controller A. J. Loguin
 Conveyor C. D. Seeberger
 Conveyor apron W. Studer
 Conveyers, Combined link and block for V. K. Horn
 Cooker S. Sauvage
 Cooking apparatus J. F. Mirrieles
 Cooking apparatus for food, Steam A. Gonella et al.
 Coop, Chicken J. B. Welch
 Copy holder C. A. Lammers
 Copy holder C. F. Ludington
 Cord fastener E. M. Comstock
 Corn-husking machine G. L. Wackerow
 Corn-husking mechanism L. T. Collin
 Corn, Wire support for seed H. Schultz
 Corner binding J. E. Davidson
 Cotton cleaner E. A. Rozier
 Cotton-elevating and distributing system W. R. Lamb
 Cotton-picking machines, Vacuum head for W. K. Dana
 Cotton-tie-bundling machine C. J. Morgan
 Colter, Disk (2 pats.) H. T. Lauterbach
 Counterweight I. G. Hedrick et al.
 Coupling and air-valve-operating mechanism, Automatic A. T. Ames
 Cranking device T. McCabe
 Cravat holder J. M. Beecher, Jr.
 Cream, Producing W. E. McCaddon
 Cream separator, Centrifugal H. Todt
 Cultivator J. B. Boldin
 Cultivator A. McLeod
 Cultivator L. L. Payne
 Cultivators, Cotton-blocking attachment for J. C. Wright
 Current-controlling mechanism L. T. Rhoades
 Curtain fixture A. Sekulo
 Curtain-pole bracket and clamp N. E. Larson
 Cut-out and fuse mechanism E. B. Ellicott
 Cutting-machine feed mechanism (2 pats.) J. McCoy et al.
 Cycle pedal, Motor E. G. Reynolds et al.
 Cycle saddle, Motor P. G. Olds
 Dam construction L. R. Jorgensen
 Designing apparatus J. A. Austin
 Die J. C. Smith
 Digging implement L. J. Baltz
 Dipper tooth and clamp E. Webb et al.
 Dish-washing machines, Dish-holding basket for G. S. Blakeslee
 Disinfecting apparatus C. H. Land
 Dispensing apparatus C. W. Shonk
 Display apparatus, Traveling W. E. Avery et al.
 Display rack, Card C. R. Hooper
 Distilling apparatus P. Publiker
 Door-closing device J. W. Clemmer et al.
 Door-fastener, Safety F. H. L. Knabe
 Door, Grain H. J. Schweitzer
 Door lock R. L. Skinner
 Door lock W. H. Hoffman
 Door-operating mechanism W. E. Harris
 Door-operating mechanism E. Pehrson
 Door pull G. A. Sieben
 Dough-handing machine R. J. F. and A. E. Aldred
 Dovetailing machine C. A. Raulf
 Draft appliance J. H. Smith
 Draft attachment J. Stewart
 Drapery support and form M. Jantzen
 Drier H. Wilson
 Dry-cell battery C. W. Simmons
 Drying apparatus C. A. Wenborne
 Drying machine, Centrifugal A. Cassirer
 Drilling machine J. S. Detrick
 Drinking fountain, Sanitary animal F. G. Partington
 Drum, Hot-water W. A. Brewster
 Dyes, Azo A. Blank et al.
 Dyes, Basic azo A. Blank et al.
 Dyes derived from aminotrisazo compounds A. Blank et al.
 Dyestuffs, Cotton A. Blank et al.
 Dyestuffs, Yellow vat M. Iljinsky et al.
 Earth carrier and dumper G. R. Abbott
 Educational device, Illustrative S. Scholfield
 Egg opener J. Meyer
 Electric cable-supporting bracket F. P. Robert
 Electric circuits, Coin-controlled switch for T. M. Knox et al.
 Electric contact device T. H. McQuown
 Electric distributing device R. H. Manross
 Electric heater J. G. Wallmann
 Electric heater (3 pats.) F. Kuhn
 Electric heaters, Circuit-opening switch for R. Kuhn
 Electric machine, Dynamo A. M. Gray
 Electric motor H. K. Sandell
 Electric switch G. L. Hughes
 Electric switch J. A. Meaher
 Electric waves, Machine for receiving R. Goldschmidt
 Electric controller D. J. Krauss
 Electrical machines, Brush for dynamo E. C. Ketchum
 Electrical oscillations, Arrangement for producing slightly-damped B. Macku et al.
 Electrical oscillations, Means for receiving W. Schloemilch et al.
 Electrical variations, Apparatus for amplifying or detecting G. W. Pierce
 Elevator safety device R. L. Taylor
 Electrode and making same, Storage battery H. C. Hubbell
 Electrodes, Making storage-battery H. C. Hubbell
 Elevated carriers, Automatic lock for E. C. Gipe
 Embroidery-cutting device J. Wolter et al.
 Embroidery frame, Shuttle machine H. Hochreutener
 Embroidery machine G. von Horvath
 Embroidery, Machine for cutting fabric along the edge of E. Schelling
 Engine cylinder, Combustion K. Hiehle
 Engine cylinders, Means for controlling the passage of explosive mixture to the T. N. Jones
 Engine-starting device A. C. Wells
 Engine starting device, Internal-combustion M. P. Ryder
 Engine-starting mechanism, Explosive R. E. Wetzel
 Engines, Air-starting mechanism for oil L. V. Stoeltzen
 Engines, Construction of the cylinders and accessory parts of internal-combustion E. Jaenisch
 Engines having a device for adjusting the time of sparking, Interrupter for electrical ignition apparatus for internal-combustion G. Unterberg
 Engines, Lubricating means for two-cycle internal-combustion H. Lemp
 Envelope E. H. Smart
 Envelope F. L. Boehert
 Exhibiting apparatus A. P. Roesener
 Explosion motor J. L. Thivolle
 Eyeglasses, Repair device for rimless G. A. Hilbert
 Fabrics in one or more colors, Means for sporting L. Wild
 Fastener C. Olson
 Faucet J. H. Glauber
 Faucets, Glass-protecting attachment for B. V. Scott
 Fern dish, jardiniere, or similar receptacle W. F. Nies
 Fibers, yarns and fabrics, Treating vegetable J. Hirschberger
 Filler cap O. J. Groehn
 Filtering machine J. Drage
 Fire door W. B. Gervais et al.
 Fire escape M. Freed
 Fire escapes, Automatic release for E. A. Bone
 Fire extinguisher E. Planagan
 Firearm J. D. Pedersen
 Fireplace G. E. Tripp
 Fish guard F. Giesenhaus
 Fishing reel C. Stanley
 Fishing reel F. Sinsinger
 Flame on the surface of water, Producing R. Fiedler
 Flax puller J. A. Lussier
 Fluid-discharging device E. A. Bolen
 Fluid gauge G. H. Sargent
 Fluid-pressure engine J. Kellington
 Flame, Metallic J. H. Schlafly
 Flame, Metallic A. T. Leavitt
 Fly catcher I. H. Faulkner
 Fly trap J. K. Bue
 Foot warmer, Electrically-heated F. Kuhn
 Footwear, Manufacture of C. De la Torre
 Fruit picker L. C. Irvin
 Fuel-feeding apparatus C. D. Stevens
 Furnace G. Garrecht
 Furnace hood J. W. Shirlcliff
 Furnaces, Door for fuel openings of M. A. Malloy
 Furnaces, Protecting screen for F. Corin
 Furnaces, Valve and flue arrangement for reversing regenerative L. L. Knox
 Fuse holder H. W. Young
 Fuse, Renewable cartridge N. D. Urquhart
 Fuses, Indicating means for inclosed D. C. Hooker
 Fusee, Railway signal W. C. Beckwith
 Game apparatus F. X. Kennedy
 Game board W. M. Cook
 Game, Card A. L. Doty
 Garment hanger D. M. Cooper
 Gas burner G. W. Blakesley
 Gas burners, Igniting attachment for T. J. Little, Jr.
 Gas lighter, Distance F. L. Rumble
 Gaseous products of combustion, and charging the same with fumigants, Apparatus for charging the same with fumigants, Apparatus for cooling, washing, and drying G. Harker
 Gate (2 pats.) G. W. and C. E. Goss
 Gate-operating mechanism J. E. C. Jacobsen et al.
 Gear-shifting mechanism P. F. Rice
 Gearing G. D. Griffiths
 Gearing J. A. Nitchie
 Gearing E. A. Halbleib
 Gearing, Transmission H. G. Farr
 Glass bottles and the like, Apparatus for casting and blowing C. I. Greer
 Glass-making method and apparatus, Sheet A. P. Whittemore
 Glue stick K. N. Pier
 Goods lifter, Store O. A. Fournet et al.
 Governor, Engine J. L. Osborne
 Grain and seed cleaner, separator and grader C. N. Hatfield
 Grain elevator H. O. Kise
 Grain, Purifying E. H. Reynolds
 Grain tester and seed separator A. E. Engelstad
 Grinder C. R. Button
 Grinding mill J. A. Welton
 Gun for throwing grenades and the like, Portable R. H. Quisling
 Gun, Machine K. Heuermann
 Gun sight, Front A. J. Evans
 Hacksaw A. Duffy
 Hame H. M. Corey
 Hammer, Elastic-fluid L. F. Massey et al.
 Harvester, Corn C. Means
 Hasp fastener F. T. Harrigan
 Hat fastener R. H. Klickman
 Hat shaper W. Pye
 Hat-supporting device J. J. Canuan
 Hat-treating apparatus L. De Nucci
 Hats or the like, Fastening means for S. J. Hudson
 Hay loader D. W. Yohn
 Hay rake and tedder, Combined side-delivery J. Macphail
 Headlight-controlling means H. J. Scott
 Headlight for vehicles, Dirigible H. Guderjahn
 Headlight, Vehicle C. M. Hall
 Heating and sprinkler system, Combined C. P. Nutter et al.
 Heating apparatus W. Check et al.
 Heating-apparatus-controlling device, Automatic E. E. Gold
 Heating system E. E. Gold
 Heating system, Steam Q. N. Evans
 Heating unit, Electric C. S. Steward
 Hinge R. H. Rouey
 Hinge W. N. Blanchard
 Hinge, Self-locking G. W. Fernald
 Hitch, Four-horse balance W. H. Joseph
 Hitching post J. A. Bartosz
 Hood, Mosquito A. Zucker
 Horn or signal device M. R. Hutchison
 Horseshoe, Nailless J. A. Hale
 Hose B. V. Hallgreen
 Hose supporter H. B. Carty
 Hosiery R. W. Scott et al.
 Hot-water heater, Combined I. and S. Blickman
 Hub liner J. F. Guier
 Hydrated aluminosilicates or artificial zeolites and making same (Reissue) R. Gans
 Hydrogenated product C. Ellis
 Ice-cutting machine W. C. Williams
 Ice-making apparatus W. E. Parsons
 Indicating device U. G. Funk
 Indicator W. K. Porter
 Indicator-driving mechanism A. Loomis
 Ink well and calendar holder, Sheet-metal W. H. Hall
 Inking mechanism O. A. Sprogel
 Insole-toe-cutting machine J. B. Hadaway
 Internal-combustion engine H. B. Burr
 Internal-combustion engine T. Lane
 Internal-combustion engine H. J. Bachman
 Internal-combustion engine W. I. Phifer
 Internal-combustion engine N. H. Schickel
 Internal-combustion engine T. B. Sitzler
 Internal-combustion engine, Multiple-cylinder F. R. Sunderman
 Ironing tree L. W. G. Flynt
 Isoprene, Making C. Ruder
 Jack P. J. Maloney
 Kitchen-ventilating apparatus A. S. Johnson
 Knee pad J. V. Andrews
 Knife W. A. Yezley
 Knitted web R. W. Scott
 Knitted web and making same, Ribbed R. W. Scott
 Knitting machine J. F. Nelson
 Knitting machine, Circular H. Swinglehurst
 Ladder shelf C. C. Nellis
 Ladder, Step A. H. Franklin
 Lamp Arc C. C. Hughes
 Lamp attachment A. B. Oppy
 Lamp burner, draft-reflector E. S. Sanderson
 Lamp burners, Draft deflector for A. M. Coons
 Lamp heater W. H. Berry
 Lamp, Miner's acetylene U. Dabresse
 Lamp-turning mechanism N. Maxfield
 Last, Stocking and glove darning and mending A. E. Le Ford
 Latch, Switch J. H. Kandig
 Lath, Expanded metal C. H. Seammell
 Lathe dog B. Haskell
 Level J. and J. Sand, Jr.
 Lever lock P. B. Walls
 Life-saving apparatus J. C. Cox et al.
 Life-saving garment J. Herlihy
 Lifting jack P. J. Harrah
 Line-casting machine J. R. Rogers
 Liquid cooler and carbonator, Combined H. G. Cordley
 Liquid-drawing apparatus J. J. Tokheim
 Liquid meter H. C. Alger
 Liquid separator J. J. Berrigan
 Lock L. A. Fealy
 Lock S. Segal
 Lock B. E. Beers
 Locker system for gymnasiums A. J. Thornley
 Logging bunk J. W. Purcell et al.
 Logging car bunk T. H. MacLafferty
 Loom, Swivel (2 pats.) F. F. Roche
 Lubricating apparatus W. E. Richardson
 Machine tool A. Kollassas
 Mail chute (2 pats.) A. K. Smith
 Mail-marking machine F. C. Ielfield
 Match stand and burnt-match holder, Sheet-metal C. W. Shonk
 Mausoleum P. W. Sievert
 Measuring device, Mileage W. F. Blount
 Measuring instrument E. O. Schweitzer
 Measuring textile fabrics, &c., Machine for L. N. Moss
 Mechanical movement W. T. Sears
 Metal articles, Apparatus for treating J. C. Russell
 Metal tips to cord, Machine for applying E. W. Anderegg
 Metallic tie and track fastening G. Olson
 Metallurgical and chemical process J. E. Bucher
 Milk can (2 pats.) J. B. Conover et al.
 Milling-machine knees, Lubricating system for J. Goetz et al.
 Mitt, Baseball T. D. Hooper, Jr.
 Milling-machine saddles, Lubricating system for J. Goetz
 Mineral and metallic substances which are to be united by pressure, Preliminarily treating A. Ronay
 Mixing apparatus L. A. Thompson
 Mop F. Lemieux
 Motion-covering device J. M. Storey
 Motor A. Anderson
 Motor-control system, Electric H. D. James
 Motors, Apparatus for the production of working fluids for O. Kraus
 Muffler (2 pats.) O. F. Persson
 Muffler J. A. Steinmetz
 Music-leaf turner E. Handler
 Music-leaf turner T. Boldizzoni
 Musical instruments, Valve mechanism for J. H. Chase
 Necktie adjuster F. A. McGinnis
 Needle, Salvorsan J. H. Stevens
 Needle threader W. J. Sheehy
 Nut blanks, Shaping P. H. McCain
 Nut lock H. Chesher
 Nut lock J. D. Duffy
 Nut, Lock A. A. Begin
 Nutcracker R. A. K. Traber
 Oil burner B. R. Ralph
 Oil burner C. Eckland
 Oil burner (2 pats.) J. L. Hoffman
 Oil burner D. Smith
 Oiling device for cutting tools C. E. Nelson
 Optical instrument H. L. De Zeng
 Ordnance, Firing gear of breech-loading A. T. Dawson et al.
 Oven, Electric C. S. Steward
 Package L. C. Weet
 Packing C. E. Strong
 Packing ring E. B. Campbell
 Padding and filling composition, Elastic A. Oetker
 Paint, Fireproof H. C. Engelson et al.
 Paring machine, Vegetable H. Robinson
 Pasty and semisolid substances, Receptacle for containing and discharging J. F. Craven
 Pen, Intermittent fountain drawing O. N. Bergman et al.
 Pencil sharpener G. Wood
 Photograph P. Catucci
 Photographic reproduction for use in making bas-relief, Producing G. M. Carpentier
 Piano player M. Newcomer
 Piano-recording attachment G. N. Goodrich
 Picture apparatus, Attachment for moving A. Szeliga
 Picture machines, Attachment for moving N. H. Clarke
 Picture-projecting apparatus, Motion F. H. May
 Pigments from titaniferous iron ores, Producing yellow P. Farup
 Pile T. W. Ridley
 Pipe-coupling H. R. Setz
 Plane O. O. Skrukud
 Planer-head attachment J. T. Gardiner
 Planter and fertilizer distributor, Combined seed A. J. Burkett
 Planters, Traction wheel for E. J. Ogden
 Plastic composition J. W. Aylsworth
 Plow J. B. Wood
 Plow, Reversible O. T. Franzel
 Plowshare clamp B. R. Wyant
 Pneumatic action A. H. Hoppert
 Pneumatic-dispatch-tube systems, Apparatus to indicate the stoppage of carriers in the transmission tubes of J. F. Skirrow
 Pocket case H. Seipel
 Pocket knife L. B. Larsen
 Pond cleaner C. Decker
 Pot polisher and scraper L. C. E. Jones
 Post mold W. W. Beebe
 Potash salts from kelp, Obtaining H. Wilson
 Power-transmission mechanism H. B. Ross
 Preservative coating composition W. Schoeller et al.
 Preserving fruit B. Marcet
 Preserving preparation W. Schoeller et al.
 Press J. F. Lewis
 Pressure gauge O. P. Loomis
 Prime mover, Fluid-operated rotary G. H. Alexander et al.
 Primary battery A. L. Saltzman
 Printer, Time E. S. Church
 Printers' forms, Line-clamp for R. W. Hillyer
 Printer's tool J. J. Broderick
 Printing attachment for slot machines W. H. Muzzy
 Printing device J. S. Duncan
 Printing machine G. M. Breckenridge
 Printing-machine delivery mechanism C. Zallud
 Printing machine, Rotary E. P. Sheldon
 Printing mechanism, Bill C. I. Hall
 Printing plate L. B. Tebbetts, 2d
 Printing press M. Vierengel
 Printing-press cylinder-tripping device H. C. La Batt
 Printing-press-inking mechanism J. F. Mahlstedt
 Printing textiles J. C. Hebdon
 Propeller J. W. Walters
 Propeller J. J. Ivancevich
 Propulsion mechanism, Marine O. Evinrude
 Protractor A. Ferraris
 Pulley fastening A. C. Thorpe
 Pulley safety device W. Schoepke
 Pump W. H. Eizerman
 Pump J. A. Norton
 Pump G. Miller et al.
 Pump for automobile tires J. H. Templin
 Pump, Oil well G. E. Fritts
 Pump or motor A. C. Pitman
 Pump, Vacuum P. Colombier
 Pump valve M. Smolensky
 Pumping unit G. D. Loud
 Quinizarin, Producing O. Unger et al.
 Rack G. J. Maas

Rail fastener H. C. Nunn
 Rail joint F. H. Oliskie
 Rail joint J. W. Jones et al.
 Rail joint P. L. Smith
 Rail joint, Insulated H. L. Wood
 Rail scraper, Electric G. A. Deminler
 Rail spike H. T. Hughes
 Railway composite tie W. J. Crawford et al.
 Railway safety device J. Johnson
 Railway tie P. J. Peck
 Railway tie O. L. Weimar
 Railways, Appliance for actuating conduit covers and collector plows of, D. D. Samaia
 Range burner, Gas E. S. Allen
 Ratchet wrench J. Dolan
 Razor-blade holder, Safety W. J. Wyatt
 Razor, Safety G. M. Kaiser
 Razor-stropping machine D. Tompkins
 Receptacle closure B. T. Williston
 Receptacle closure A. M. Stover
 Rein holder A. A. Kinion
 Rein ring J. Grover
 Resilient wheel R. A. Nicholson
 Ribbon device W. F. Sprick
 Rim, Demountable J. A. Anglada
 Rock crusher, Gyratory A. Washburne
 Rock-drilling machine W. S. Beujamin
 Rock-drilling machine F. Bade
 Roller E. R. Bainter
 Roofing C. Russell
 Roofing compound J. Racz
 Roost, Chicken F. Schardt
 Rope, &c., coupling R. W. Douglas
 Rotary engine H. Dock
 Rotary internal-combustion engine L. S. de Richelle
 Rubber-shoe attachment T. C. Ridge
 Rug withdrawer N. W. Aldous
 Saddle-tree girth connection, J. F. Schoelkopf
 Safe construction M. Mosler et al.
 Safe, Wall J. H. Jann
 Safety handle, Adjustable C. F. Black
 Salt cartridge P. K. Stern
 Sample case and equipment G. Robbins
 Sash lock and ventilator guard, Combination F. C. Hamilton
 Sash, Reversible window S. Viragh
 Sausage-machine attachment A. G. Weier
 Saw-filing machine W. J. Holmes
 Scale, Automatic A. M. Rich et al.
 Scale, Automatic coin-controlled, G. D. Green
 Scraper H. B. Sauerman
 Screen closure T. A. Gebhardt
 Screening shovel O. Thibault
 Seeder and cultivator tooth T. B. Rowell
 Seeding machine, Disk drill T. B. Rowell
 Sewer block A. S. McCombe
 Sewer-cleaning means J. Bruce
 Sewing machine C. T. E. Gould
 Sewing machine J. H. Hagan
 Sewing machine F. J. Nash
 Sewing machine, Button H. W. Morris
 Sewing-machine head A. G. Cooper
 Sewing-machine spreader or loop retainer L. Onderdonk
 Sewing machines, Cord-guiding attachment for buttonhole F. M. Kennedy
 Shade hanger, Adjustable L. Lemkuhl
 Shade roller and curtain bracket J. E. Orr et al.
 Sharpening device, Saw H. G. Conrad
 Sharpening machine, Rotary razor C. M. Herring
 Sheet-feeding machine H. C. La Batt
 Sheet-feeding machine F. A. Freeman
 Sheet-feeding-machine-registering device H. C. La Batt
 Ship W. Kincaid
 Ship brake, Emergency J. H. Hyde
 Shock absorber M. D. Tillman
 Shock-loading device M. W. Hoag
 Shoe J. M. Sundean
 Shoe form (2 pats.) W. S. Lougee
 Shoe, Snow C. E. Ellis
 Shoe, Spiked J. S. Caldwell
 Shutter-operating mechanism, G. W. Lancaster
 Sifter H. W. Case
 Sifting device C. S. McCord
 Sign, Illuminated J. L. Dawes
 Silk, Manufacture of artificial H. Timpe
 Silo G. P. Youmans
 Silo and roof connector M. J. O'Reilly
 Slack-adjusting device, Automatic J. F. Richards
 Slicer and grader, Household G. A. Gillespie
 Smoke-burning device F. T. Farnum
 Sound box P. Weber
 Spark collector and distributor, M. Gerardy
 Spark plug C. E. Talbert
 Speed indicator R. Cronley et al.
 Speedometer A. Hoffecker
 Sprayer, Tree W. S. Boyce
 Spring seat W. Lewis
 Stamp, Straight-line time A. Beyer
 Stamp, Ticket H. M. Lukens, Jr.
 Staple, Fence C. T. Sheppard
 Steam heater, Electric C. C. Ponting
 Steering mechanism C. Krsien
 Stencil for drawing structural details in technical plans H. Seehase et al.
 Stencil W. G. Fuerth
 Stirrup, Saddle S. Harms
 Stirrup, Safety C. S. Neidigh
 Stoker, Mechanical W. R. Wood
 Stone and its production, Porous artificial J. W. Aylsworth et al.
 Stove, Electric C. S. Steward
 Stove lid W. J. M. Graves
 Strainer attachment G. Bendix
 Strainer, Gasolene L. W. Short
 Strap and tab-forming machine F. Metznerbach
 Street sweeper T. A. Killman
 Stuffing box W. R. Collins
 Sugar manufacture, Concentration and crystallization apparatus especially for F. Tiemann
 Sulphite pulp-digester liquor, Process and product of treating O. Grothe
 Tack A. Hamill
 Talking machine W. H. Pumphrey
 Talking-machine attachment, W. C. Holland
 Target system, Movable M. A. Palen
 Telephone receivers, Head support for C. Adams-Randall
 Telephone support K. B. Miller et al.
 Telephone support K. B. Miller

Telephonic receiver (2 pats.) A. Marr
 Temperature-regulating device, Thermo-static J. R. Reinecke et al.
 Tempo regulator H. Koch
 Thoria from monazite sand, Extracting C. Baskerville
 Thread-cutting machine J. A. Dowd
 Thread guide J. R. Mitchell
 Ticket holder W. L. Daly
 Tiller quadrant C. W. Phalen et al.
 Tilling the soil, Motor-driven for H. I. Washburn
 Time mechanism B. C. Batcheller
 Time recorder J. F. Kiely
 Timing device W. M. Melling
 Timing mechanism B. C. Batcheller
 Tin from tin-scrap and other materials containing tin, Obtaining tetrachloride of P. Wolff
 Tin tetrachloride, Producing P. Wolff
 Tire armor, Pneumatic C. Matson
 Tire, Elastic metal G. E. Dargatz
 Tire-fastening device R. C. Wall
 Tire, Resilient H. Wellstead
 Tire-spreading device J. O. Stewart
 Toboggan, Life-boat W. H. Wickham
 Tongue supporter for vehicles J. Jensen
 Top-roll saddle E. Dixon
 Towel rack J. O. Knox
 Toy D. P. Clark
 Toy J. Meckovsky
 Toy, Aeronautic E. B. Lodge
 Trace holder W. H. Schaeffer
 Track sander, Automatic H. T. Aydelott
 Tractor H. J. Stegeman
 Tractor D. Conn, Jr.
 Train-control mechanism, Automatic, W. Pick
 Train-order holder C. J. Quay
 Tray, Wheeled P. J. Harrah
 Tread, Resilient P. W. Pratt
 Treeing stand H. A. Ballard
 Tripper, Self-propelling H. E. Howard
 Trolley constructions, Steady-strain device for O. S. Lyford, Jr.
 Trolley wheel A. Perry
 Trolley-wheel support L. W. De Young
 Trousers, Machine for felling waistbands of W. E. Bailey
 Trousers stretching and creasing device F. Bauer
 Trucks, Clasp brake for railway L. J. Berg
 Tub stand, Laundry J. L. Bayley
 Tumbler washer G. C. Rogers
 Twine cutter F. J. Thull
 Type-casting apparatus G. Amrhein
 Type-writing machines, Bar mechanism for O. Petermann
 Type-writing machines, Key cap or button for W. R. Fox
 Typographical machine J. R. Rogers
 Underreamer G. A. Montgomery
 Urn, Cooling H. D. Kelly
 Valve A. E. Crum
 Valve and connection therefor E. Bolland
 Valve, Automatic R. W. Cummings et al.
 Valve, Automatic regulating, C. B. Rogers
 Valve block F. J. Douglas
 Valve, Blow-off W. W. Kemp et al.
 Valve clamp A. S. Vogt
 Valve construction N. N. Boyden
 Valve, Flush-tank R. G. Ferguson
 Valve-operating mechanism, Flush J. W. Meaker
 Valve, Pneumatic F. G. Lynde
 Valve, Radiator G. D. Hoffman
 Valve, Release F. Phelps
 Valve, Relief C. R. Houghton
 Valve-seat former M. F. O'Keefe
 Valve-truing tool F. O. Albertson
 Valve water gauge W. B. Pettus
 Valves, Apparatus for operating flushing T. F. Payne
 Vault closure C. G. Pfeiffer et al.
 Vault head A. W. Kurz
 Vehicle brake C. Reiner
 Vehicle elevating and turning device R. Bauman
 Vehicle fender J. F. Wittmann
 Vehicle, Four-seated H. H. Kennedy
 Vehicle guiding mechanism F. W. Brandt
 Vehicle jack E. W. McCarroll
 Vehicle, Motor H. E. Hoines
 Vehicle, Motor-propelled, T. F. Cray et al.
 Vehicle spring M. A. Schuster
 Vehicle spring (reissue) M. M. McIntyre
 Vehicle trailing device D. C. Bryan
 Vehicle wheel (3 pats.) J. J. Fahrney
 Vehicle wheel S. C. Hatfield
 Vehicles, Combination tail-light, sign-plate and holder therefor for E. E. Poole
 Vending machine C. E. Fanning
 Ventilating exhaust, Combination vacuum R. G. Ferguson
 Ventilator R. M. Pancoast
 Ventilator W. R. Johnson
 Vise-upsetting attachment G. E. Maxwell
 Voting machine, Ballot F. Brown et al.
 Voting machines, Office-vote-restricting mechanism for S. Loe
 Vulcanizing apparatus J. C. Klahen
 Wagon M. J. Todd
 Wagon, Dump J. J. Byron
 Wall construction for houses and other buildings J. W. Moseley
 Wall socket J. Kennedy
 Wardrobe C. J. Coleman
 Washing device, Clothes E. C. Stuth
 Washing-machine mounting W. E. Hartt
 Watch A. Bannatyne
 Watch holder for expansible bracelets, &c. C. J. Callahan
 Water-closet valve R. B. Grimm
 Water heater F. F. Turner
 Water heater and steam generator, Electric A. P. Nichols
 Water-level-demonstrating device, W. F. Buck
 Water motor H. J. Shaffer
 Water pressure in long underground tail races, Means for regulating R. D. Johnson
 Waterproofing compound T. W. Smillie
 Weather strip H. H. Schroyer
 Weighing machine, Automatic C. D. Scott
 Welding, Device for preventing formation of burs in electric W. A. Kilmer et al.
 Welds, Method of and apparatus for preventing formation of burs in electric W. A. Kilmer et al.

Well-drilling apparatus J. Darling
 Well tool W. Schildwachter
 Wheel C. W. Nichols et al.
 Wheel J. L. Walker
 Wheel mount F. Siwak
 Wheel rim, Detachable H. C. Gibson
 Wheel rim, Vehicle E. C. Shaw
 Whiffletree J. P. Jones
 Whip holder F. E. Provan
 Whip socket J. B. Hostedler
 Wind shield R. A. Brine
 Windmill J. T. Garton
 Windmills, Power adjuster for J. Hopkins
 Winding machine (2 pats.) W. Marcroft et al.
 Winding machine J. B. Bolton
 Window J. Pethick
 Window cleaner M. J. Milz
 Window screen J. Schummer
 Window screen C. E. Bower
 Window-stop lock E. E. Kilmer
 Windows and screens, Hanger for, F. E. Reed
 Wire-applying and twisting implement J. E. Langley
 Wire couch fabric C. H. Gail
 Wire stretcher J. W. S. Barger
 Wireless-transmission signals, Receiver for V. Poulsen
 Wrapping machine G. R. Ward
 Wrench G. J. White
 Yarn-mercerizing machine P. Hahn

ISSUED FEBRUARY 24, 1914.

MECHANICAL PATENTS

Accounting system W. J. Crumpton
 Adding mechanism F. L. Fuller
 Address plate W. R. Allen
 Addressing machines and the like, Ribbon-ink for D. C. Hughes
 Adjusting device J. H. Williams
 Advertising apparatus Y. Masuzawa
 Aeroplanes and the like, Levitating apparatus for starting and stopping E. Bachelet
 Agricultural machinery J. M. Rutledge
 Air compressor C. Day et al.
 Air motor J. R. Kinney
 Air-purifying and cooling apparatus C. H. Bicalky
 Ammunition shells, Means for removing E. Voller
 Animal trap J. De St. Legier
 Arm chair A. Wanner, Jr.
 Ash can and lawn roller, Combined J. C. B. Jarvis
 Athlete's protective pad W. L. Golden
 Auto emergency brake W. H. Innis, Jr.
 Automobile brake W. F. Via
 Automobile device G. Duncan
 Automobile starter V. De Marais
 Automobile wheel block J. C. Zoll
 Autoplow (2 pats.) W. Clow
 Back pad J. Ulrich
 Bag-holding and filling device J. B. Simmow et al.
 Bait, Artificial C. W. Stewart
 Baling machine C. F. Uecke
 Banana peeling machine G. J. Bragg
 Bark from logs, limbs of trees, and slabs, Device for removing, E. Lisherness et al.
 Bath attachments, Bracket for shower W. T. Sheldon
 Battery case, Portable storage, J. A. Callier
 Battery insulation, Storage J. N. Davis
 Bed T. R. Treiber
 Bed J. R. Smith et al.
 Bed, Davenport J. E. Brezinski
 Bedstead and mattress W. Katzenberger
 Bedstead corner-post construction G. G. Powers
 Belt support, Conveyor F. R. Wilson
 Belt support, Conveyor F. R. Willson, Jr.
 Bending machine G. V. Plante
 Bicycles and the like, Crank hanger for S. W. Ford
 Binder, Loose-leaf W. P. Pitt
 Blind fastening, Window J. J. Daniels
 Block-signal system E. F. Bliss
 Blow-off device for digesters and the like, Safety G. R. Mereweather
 Boiler water-feed controller, Steam L. S. Watres
 Book cover, Detachable H. C. Folger
 Book-cutting machine P. Heldmann
 Books, Hanger for W. Y. Dear
 Books, Holder for manifolded sales H. C. Banwell
 Boot and shoe counter and toe stiffener W. B. White
 Boot or shoe, Laced E. Forbes
 Bottle C. V. Johnson
 Bottle G. W. Schencks
 Bottle-filling machine T. L. Valerius
 Bottle rack, Milk-test F. A. Wilcox
 Bottles, Attachment for liquid-polish-containing R. F. Boop
 Bowling pin M. J. Whelan
 Bowling pin and like article L. A. Deuther
 Box construction O. W. Ward
 Box fastener J. H. Gartside
 Brake-governing apparatus F. James
 Brake lever, Adjustable C. H. Thompson
 Brake system, Fluid-pressure, W. H. Sauvage
 Broiler, Cabinet C. W. Prentiss
 Brooms, Shipping carton for E. J. Veeder
 Brush H. A. Hanson
 Buckle S. Eichberg
 Buckle, Releasing J. M. Russell
 Building block or tile E. S. Stantou
 Buildings, Floatable foundation for R. Paine
 Bulkhead doors and the like, Release mechanism for W. G. Gibbons et al.
 Bullet, Impact-illuminating W. H. Buell
 Bullet, Impact-illuminating (3 pats.) T. C. Johnson
 Bumpers, Fastening for A. M. Sonnichsen
 Buoy, Gas N. Goodyear
 Bushing A. J. Gray
 Button O. E. Backus
 Cable guide for sheaves and pullers W. D. Jones

Cabinet, Kitchen V. O. Roeder
 Calculating machine D. E. Post
 Calculating machine F. Trinks
 Calorimeter for flowing liquids or gases M. Hottinger
 Camera E. C. Walters et al.
 Camera-enlarging attachment C. C. Leeds
 Camera shutter H. H. McNelly
 Can cutter and faucet, Combination H. P. Disier
 Can opener L. E. Holmes
 Car coupling W. K. K. K. K.
 Car fender W. F. F. F. F.
 Car, Tank M. A. Garrett
 Car-unloading apparatus, Freight B. P. Saunders et al.
 Car wheel, Mine W. H. Bines
 Cars and the like, Method of and means for bracing the contents of, E. E. Koehler
 Cars, Means for uncoupling mine G. P. Payne
 Carburetor (2 pats.) J. W. Raymond
 Carburetor for internal-combustion engines M. R. Lawrence
 Card-exhibiting device H. W. Helliker
 Carousel or merry-go-round, W. C. Farnum
 Carpet raveler F. R. Richards
 Catalyzer and making same C. Ellis
 Catch hook and clasp, Expansion link C. L. Depollier
 Catch hook, Expansion link, C. L. Depollier
 Cement, Alkaline (2 pats.) H. Anies
 Chair H. Heyer
 Calk holder T. R. Treiber
 Chimney R. B. Hartman
 Chimney cap W. L. Carter
 Chimney cap P. Rindone
 Cigar package J. Foege
 Cigarette tips, Machine for putting on A. Cameron, Jr., et al.
 Circuit-controlling lock T. N. Birch
 Clip R. Marx
 Clock switch H. J. Treganza
 Clothes-fastening device E. S. Crumb
 Clothes pin F. J. Dostal, Jr.
 Clutch, Fluid I. E. Barrieklow
 Clutch mechanism G. H. Jackson
 Coal and gas furnace M. J. Farquhar
 Code recorder, Dot-and-dash T. Melville
 Coffee pots and similar vessels, Drop catcher for G. A. and L. A. Schlingmann
 Coffee roaster G. Chauvin
 Collar, Apparel H. E. Shumway
 Collar box or bag F. F. Knothe
 Collar, Horse C. Eberle et al.
 Collar support M. E. Primrose
 Collars, cuffs and the like, Blank-folding machine for the manufacture of H. M. Clearwater et al.
 Composing machine, Typographical D. S. Kennedy
 Composing machine, Typographical C. Muehleisen
 Concentrator C. G. Hubbard
 Concrete, cement, and the like, Manufacture of products of H. S. Owen
 Concrete cisterns, &c., Mold for F. H. Dumbauld
 Concrete distributor T. Lightbody
 Concrete floor construction, Reinforced W. L. Schultz
 Concrete, Waterproofing A. E. Horn
 Concrete-work hanger, A. T. McAllister et al.
 Controlling device A. E. Norris
 Converter J. V. Breteau
 Cooking utensil P. Connin et al.
 Coop, Chicken E. E. Bell
 Corn husker and shredder, Combined A. Tabbert
 Corn tester, Seed S. Carlson
 Corset W. J. Rossiter
 Corset C. Macdonald
 Cot, Folding J. L. Tandy
 Cottou chopper and cultivator, Combined H. Cunningham
 Cotton picker P. E. Pearce
 Cracker can, box and the like and display or show front therefor, S. S. Goldman
 Crate, Knockdown J. G. Greene
 Crusher O. J. Moussette
 Crutch N. Sharp
 Culinary utensil N. S. Harter
 Cultivating machine P. A. Johnson
 Cultivator W. E. Smith
 Curtain and drape rods, Support for E. Lewerenz
 Curtain pole W. H. Sippel et al.
 Curtain-stretching device, C. F. Dawson et al.
 Cut-off, Automatic time J. Lyle
 Cutter head, Rotary E. Kenny
 Cutting, folding and winding machine J. A. Firsching
 Cycle seat support, Motor D. J. Johnston
 Deflation indicator F. W. Putnam
 Dental cabinet R. B. Power
 Desiccating and collecting apparatus I. S. Merrell
 Detachable wheel V. and S. Riley
 Detonating device W. B. Greenleaf
 Diaper T. F. McGee
 Display apparatus F. P. Walton
 Display case M. A. Webb
 Display device A. S. Spiegel
 Ditcher W. W. Jones
 Door attachment T. Schidorsky et al.
 Door, Grain D. L. Williams
 Door spring F. J. Toussaint
 Doors and gates, Adjustable stay for M. A. Christenson
 Doubletree, Spring R. N. Dike
 Dough and other plastic material, Apparatus for dividing and molding J. and H. L. Callow
 Dough cutter I. L. Haines
 Dowel machine H. A. Russell
 Draft appliance J. M. Wright et al.
 Draft deflector C. Fischer
 Draft equalizer J. H. Karloff
 Drain, Backwater cellar J. P. Farley
 Drawing-board stand A. Johnson
 Dredge, Dipper G. H. Lutz
 Drill bit A. W. Taylor
 Drill bit, Well J. S. Rist et al.
 Drilling machine C. K. Lassiter
 Driving mechanism L. E. Topham
 Drying apparatus C. Castronuovo

- Dyeing machine J. M. Payne
Edge-binding machine A. F. McCollum
Egg tester E. R. Winslow
Egg tray (2 pats.) E. R. Winslow
Egg tray J. S. Hedden
Electric battery and accumulator F. Sablon
Electric circuit breaker and the like
..... E. A. Fagerlund
Electric generator and vehicle starter
..... E. L. Jones et al.
Electric-light system, Combined
..... J. H. Burcham
Electric machine coils, Winding reel for
dynamo (2 pats.) M. J. Clark
Electric machine, Self-regulating dynamo
..... C. A. Vandervell et al.
Electrical conduit J. S. Wheeler
Electrical recorder W. H. Cone
Electrical resistances, Manufacture of
..... A. W. Maley
Electrode J. W. Richards
Electrohydraulic power appliance
..... M. C. White et al.
Electrolytic generator C. Ellis
Electropneumatic brake W. V. Turner
Elevating chair R. R. Shorer
Elevator M. F. Behreud
Elevator E. H. Grantham et al.
Elevators, Automatic gate control for
..... G. F. and J. W. Pemberton
Embroidery frame C. Schoen
Engine-driving mechanism, Carding
..... A. H. Morton
Engine lubrication, Internal-combustion
..... J. Adams
Engine-starting mechanism, Explosive
..... H. Meredith-Jones
Engine-starting mechanism, Internal-combus-
tion J. H. Burton
Engines, Ignition system for explosive
..... C. T. Spickelmire
Engines, Vaporizer for internal-combustion
..... E. P. Lamb
Engraving machine O. Nelson et al.
Envelope-feeding mechanism C. L. Davis
Exhibitor, Changeable H. E. Shedd
Explosive engine G. Milne
Explosives, Timed detonator for
..... M. W. Quiggle et al.
Extension table V. F. Neumann
Eyeglass mounting J. Rosenblatt
Fabric, Machine for making coat-of-mail
..... G. Gros
Fabric or the like, Device for folding strips
of J. J. Schefer
Fan F. Wojcicki
Fan, Rotary T. J. Sturtevant
Fastener for rotary elements C. S. Lockwood
Fastening device W. E. Sharp
Faucet A. Paul
Feed regulator J. D. Moore
Feed regulator F. C. Morrow
Feeder, Poultry I. B. Litzenger
Fence post M. D. Welsh
Fence stretcher, Wire T. R. G. Smith
Field cover L. P. Derr
Filaments and filamentous plates for stor-
age-battery electrodes, Making
..... H. C. Hubbell
Film-mending machine P. E. Stow
Films, Apparatus for treating liquid
..... C. V. Boys
Filter S. L. Crawford
Fire escape V. Snyder
Fire-extinguisher containers, Support for
..... H. L. Nelson
Fire-extinguishing means F. C. Simson
Fire-extinguishing system D. Povers et al.
Fish trap A. Hall
Fluid-compressors, Unloader for W. Prellwitz
Fluid meter A. R. Dodge
Fluid meter, Elastic A. R. Dodge
Fluid meters, Pitot plug for L. A. Sheldon
Fluid mixer, Gaseous P. M. Orlopp
Fluid-treating device F. R. Monroe
Flushing apparatus, Closet W. S. Graham
Fly paper holder W. M. Caldwell
Fly trap S. McKittrick
Flying machine W. A. Hutson
Flying-machine-stabilizing device A. Sprater
Food chopper C. Schock
Form, Collapsible clothing M. I. Hamburger
Fruit gatherer M. H. Patton
Fruit picker A. Quick et al.
Fruit-pressing apparatus W. H. Browning
Fumigating device J. Brassfield
Functional integrating device E. G. Bailey
Funnel S. Bowdidge
Furnace draft-regulator J. Heffernan
Furnace-feeding mechanism J. Tedell
Furnace roof E. E. Slick
Furnace-stoking grate D. F. Nisbet
Furnaces, Electrical heating device for
metallurgical U. Wedge
Fuse switch T. E. Murray et al.
Game apparatus G. C. Lasares
Game, Automatic baseball C. A. Shepard
Garbage-collecting vehicle A. G. Sharp
Garment M. Cowen
Garment-fitting device C. H. Smoot
Gas currents, Apparatus for trapping solid
particles in suspension in T. E. Murray
Gas generator, Acetylene A. Duis
Gas heater C. J. Johnson
Gas mantles, Making F. C. Flint
Gas-washing apparatus H. E. Theisen
Gases, Apparatus for cleansing, cooling,
and mixing H. E. Theisen
Gaseous ozonids, Apparatus for the pro-
duction of W. J. Knox
Gate E. Ocean
Gear, Reversing S. Baader
Gear, Reversing and controlling J. P. Hall
Gears, Device for preventing the over-
throw of F. Trinks
Gears, Machine for cutting involute spur
..... H. Perrot
Gearing J. C. Eickhoff
Gearing H. L. Johnston
Gearing device G. P. Rasck
Gearing for the reels of agricultural ma-
chinery, Variable speed B. P. Saunders et al.
Gearing for transmission of rotary motion
..... F. H. Royce
Gearing, Frictional C. Sipple
Gearing, Transmission G. Westinghouse
Gearing, Transmission E. N. Bowen
Generator J. Haskins
Generator J. W. Loper
Gold and other precious material, Appara-
tus for arresting D. Guilford
Golf club T. Heffernan
Governor, Engine F. M. Leavitt
Grain-cleaning mill H. E. Hoines
Grain heater T. F. Morse
Grates, Warming or cooking attachment
for D. Council
Grease cup C. H. Clark
Grinding slabs, Machine for P. Richter
Grinding wheels, Apparatus for the auto-
matic supply of cooling water to
..... P. Heimberg
Grounding device H. E. Schimmel
Gun sight W. F. Leushner
Gun-sling-attaching means A. Wilcke
Gun stocks, Adjustable butt-plate for
..... J. W. Perkins
Guns, Breech-actuating mechanism of semi-
automatic and quick-firing A. T. Dawson et al.
Guns, Breech mechanism of semi-automatic
and quick-firing (2 pats.) A. T. Dawson et al.
Hack saw machine H. H. Jones
Hame holder A. Beinstein
Hammer tool, Pneumatic H. Keller
Harness attachment H. G. Richardson
Harvester, Beet C. G. Cooper
Harvester, Corn W. N. Edgar
Harvesters and the like, Power mechanism
for L. T. Velen
Hat-paring machine F. C. Craw
Headlight, Automobile J. N. Bashaw
Headlight, Dirigible J. Zimmermann
Headlight, Electric J. M. Richardson
Heat-insulated receptacle M. A. Roberts
Heel W. H. Vaughan
Heel, Shoe G. F. Matzner
Hide stretcher B. F. Horsting
Hobby-horse A. W. Swender
Hook M. T. Olstad
Hopper, Automatic feed E. F. and M. E. Rossow
Horseshoe A. Salton
Horseshoe G. Staples
Hot-water or steam boiler A. V. Stealy
Hub construction W. R. Hepler
Humidor, Pocket J. Romano
Hydrated alumino silicates or artificial zeo-
lites, Making (Reissue) R. Gans
Hydraulic baffle, absorber or deflector
..... W. A. Doble
Ice-cream-freezer holder F. Hostetter
Ice-cream paper cartons, Device for use
in filling L. L. Westling
Innersole G. E. Rollins
Insulating fitting, Electric J. F. Burns
Insulators, Rain guard for M. K. Holmes
Internal-combustion engine J. S. Brown
Internal-combustion rotary engine
..... C. L. Ragot
Jack I. A. Weaver
Journal box, Lubricating I. Szot-Czeten
Key-duplicating machine A. V. Jensen
Key guide R. K. Mulford
Knitting machine, Circular E. E. Kilbourn et al.
Labeling machine F. Coates
Ladder foot, Adjustable (3 pats.) W. D. Osterhoudt
Lamp C. E. Godley
Lamp, Acetylene W. H. Clarkson
Lamp, Arc J. Harden
Lamp, Diagnostic R. H. Wappler
Lamp fixture, Electric T. Nelsen
Lamp holder W. G. S. De Carteret
Lamp, Portable self-contained electric
..... F. T. Baird
Lamp stand, Electric W. A. McKay et al.
Lamp suspension, Incandescent H. R. Sargent
Last, Detachable P. J. Guth
Lasting apparatus, Heel A. L. Russell
Latch and lock, Vehicle door F. C. Altmann
Latch for wind-shields, Automatic
..... H. W. Fenton
Latch, Gate C. C. Gish
Lead-making apparatus, White R. A. Stewart
Lead, Manufacture of white F. H. Sharpe
Leaf holder, Loose W. P. Pitt
Level T. M. Bane
Life cabin G. R. De Nise
Lifting jack M. Lutenberger
Lifting jack F. Davy
Lighter C. Ganz
Linotype machine brake O. M. Fancher
Liquid-dispensing apparatus A. Dade
Liquid meter H. H. Gregory
Liquid separator H. E. Theisen
Lock and latch, Combined E. H. Tracy
Locomotive longitudinal shaft G. H. Jones
Locomotive tenders, Coal passer for
..... C. L. Heisler
Locomotives, Automatic safety-stop for
..... C. Devos
Loom for weaving tubular fabric A. E. Charnack
Loom harness-actuating mechanism
..... J. A. Shayer et al.
Looms, Lay and shuttle mechanism for
narrow ware A. Weimar
Looms, Weft stop-motion for weft-replen-
ishing H. Chadwick
Lubricators, Automatic closure device for
..... F. Bled
Mail-marking machine T. G. Stoddard
Manure spreader J. D. Curtis
Manure spreader J. A. Olson
Manure spreaders, Conveyor-speed-varying
mechanism for J. F. Neeren
Marker U. D. Kenworthy
Marker, Land A. Dahlberg
Match holder and gas turner J. W. Boughton
Match scratcher, Pocket J. M. Cox
Meat block, Revolving J. Ellenson
Mechanical motor H. P. Pfum
Metal, Manufacture of bar and tube-shaped
articles from molten A. H. Pehrson
Meter J. M. Burton
Meter for measuring the flow of an elastic
fluid A. R. Dodge
Mill governor, Feed E. Herr
Meter for measuring the flow of fluids
..... A. R. Dodge
Microphones in parallel, Means for work-
ing R. Goldschmidt
Milk and cream or the like, Apparatus for
treating T. L. Valerius
Mines, Device for signaling the presence
of explosive gas mixtures in fire-damp
..... H. Neubauer
Mirrors, windows, and the like, Compound
for decorating E. Leimberger
Moistening apparatus M. J. Buckley
Monkey wrench F. W. Bronnosky
Mop, Dust A. H. Harrison
Mop-wringing device E. Rosenfeld
Motor-control system R. C. Newhouse
Motor-suspension mechanism L. Chevrolet et al.
Motors, Auxiliary air-inlet for explosive
..... G. A. Stewart
Motors, Means for regulating the speed of
asynchronous or induction J. Bethenod
Motors, Mounting for F. W. Rilance
Mud guard for cranking devices C. A. Bartlog
Multiduct T. E. Murray et al.
Musical apparatus F. H. Hartzell
Musical instrument, Mechanical J. A. Weser
Musical instruments, Electromechanical
player for J. F. White
Musical instruments, Pneumatic governor
for W. B. and A. E. Tunstall
Musical instruments, Tracker device for
automatic C. S. Burton
Needle case A. F. Brabant
Nut and making the same, Sheet-metal
..... A. H. Moore
Nut and making the same, Sheet-metal
..... W. R. Webster
Nut-blank machine, Double-acting automatic
..... W. L. Ward et al.
Nut lock A. Bazin
Nut-lock construction J. R. Armstrong
Oil by the oxygen contained in air, Device
on transformers for preventing the de-
composition of A. Aichele
Oil-distribution system L. C. Snell
Operating table W. E. Stiles
Optical instrument W. Work
Orchard heater J. L. Hamilton
Ordnance sighting apparatus K. Voller
Ore concentrator H. E. Wood
Ore pulverizer O. J. Moussette
Ore sample C. H. Urquhart
Oven J. M. Roberts
Oxygen, Apparatus for the manufacture of
..... E. F. Aumont
Package for decorative substances G. J. Irseh
Package tie C. G. Van Dyke
Package tie F. Buse
Packing L. B. Wilson
Packing material R. H. Anderberg
Packing ring H. R. Geer
Pail, Milk J. H. King
Pants presser S. N. Davidson
Paper, Die for embossing and cutting wall
..... H. Bosch
Paper package S. Wheeler
Paper reel, Collapsible D. W. Hudson
Pattern-drawing apparatus (2 pats.) H. P. Macdonald
Pawl-and-ratchet mechanism F. A. Strong
Pencil sharpener F. E. Hinir
Photography, Color L. S. Glover
Piano lock A. Wilberg
Pick M. Madden
Picture and making the same, Color E. Bissell
Picture apparatus, Intermittent movement
for motion N. Power
Picture machines, Feeding mechanism for
motion N. Power
Picture mechanism, Motion J. Tessier
Pipe wrench F. G. Basso
Pistols, Search light for J. B. Williams
Pitch and preparing the same, Hard com-
mercial C. N. Stevens
Planer, Metal A. W. Whitcomb
Planter, Corn K. Botnen
Plastic composition J. H. Mills
Plastic masses, Apparatus for drying arti-
cles formed from O. Eberhard
Pliers sheath or holder J. M. Davis
Plow and planter, Lister J. O. Bigham
Plow hitches, Equalizer for traction
..... J. R. Hammell
Plow-point bolt G. W. Turner
Plow, Sweep stock H. T. Young
Plumbing testing appliance H. F. Shade
Pneumatic bulb I. F. Kepler
Pneumatic dispatch apparatus C. F. Stoddard
Positions of points from their co-ordinates,
Means for determining E. R. Clarke
Power by utilizing the force of the current
in streams and the like, Chain apparatus
for generating A. Marinescu
Precious stones to be ground, Apparatus for
making dops for holding (2 pats.)
..... E. Loesser
Precious stones to be ground, Dop for
holding E. Loesser
Preservative receptacle I. T. Whitton
Press L. Matthews
Pressing or molding layers of agglomerated
fibrous material, Apparatus for
..... E. Lanhoff
Printers' galleys, Locking device for
..... A. E. Barter
Printing and addressing machines, Ribbon
inker for D. C. Hughes
Printing and other machines, Delivery
board for H. Pearce et al.
Printing apparatus H. Quertier
Printing press E. A. Parker
Printing presses, Making photostereotypes
for typographic C. Baechler
Printing viscose on textile fabrics
..... E. Fourneaux
Pump D. J. Muncy
Pump I. Mitchell
Pump, Automatic E. J. Thayer
Pump barrel C. A. Waitz
Pump cylinder L. J. Black
Pump, Measuring A. A. Bowser
Pump, Rotary F. J. Matchette et al.
Punch presses, Feed mechanism for
..... C. Englert
Quilting frame J. Hill et al.
Rack S. Carlson
Radiator W. Cleveland et al.
Rail joint G. Holinka
Rail joint W. M. Gleeson
Rail joint J. Isbell
Rail joint J. Reimann, Jr.
Rails, Apparatus for use in butt welding
the ends of W. Brewitt
Railway rail G. S. Mahn
Railway signal system, Electric A. Pillich
Railway signaling system J. B. Struble
Railway sleepers, Portable machine for
grooving A. Collet
Railway spike retainer E. B. Jarvis
Railway switch F. H. Ellis
Railway switch blade M. Grimaldi
Railway switches, Spring locking mechan-
ism for F. H. Ellis
Railway tie F. Clifford
Railway tie N. Kallioinen
Railway tie, Metallic E. E. Slick
Rake J. W. Benson et al.
Ranges, Hot-water tank for W. V. Robinson
Razor T. C. Sheehan
Razor H. J. Gaisman
Razor, Safety L. Kalina
Razor-stopping device S. W. Charles
Recording machine W. H. Brown
Reel E. W. Salmon, Jr.
Reel D. W. Hudson
Refrigerating apparatus C. and W. A. Chase
Refrigerating apparatus W. A. Owen
Refrigerating liquids L. Bichler
Refrigerator car J. Cunnning
Register, Leaf-controlling means for credit
..... F. J. Peterson
Reinforced tie W. G. Chippy
Resistance grid N. Wilkinson
Resuscitating apparatus C. H. Hammond
Reversing mechanism W. A. E. Henrici
Revolving screen F. Spencer, Jr.
Rim construction, Split F. and N. M. Spranger
Road roller K. Zawadzinski
Rock drill H. Edgar
Rod or pipe clamp S. J. Reilly
Roll-adjusting mechanism E. A. Wall
Roll-polishing apparatus J. L. Hurley
Rope-lock for trunks, crates, and the like
..... J. J. A. Miller
Rotary-cylinder engine C. E. Fredericksen
Rotary engine F. A. Almy
Rotary screen and separator F. L. Walter
Rubber, Manufacture of products from in-
dia H. Dogny
Rug hanger T. A. Cleary et al.
Rug sack H. L. Gardner et al.
Rule and square, Combined folding
..... L. D. Craig
Rule, Slide W. O. Phillips
Sad iron C. J. Johnson
Safety device C. E. Burke
Sandal R. Weidt
Sash fastener E. F. Maul
Sash hanger, Sliding F. B. Maslen
Sash lock B. M. Brae
Sash lock, Window L. H. Bradshaw
Saw, Portable machine M. Reichlinger
Saw, Well R. T. Fagan
Scaffolding, &c., Binder bracket for
..... C. Corkhill
Scale J. Charet
Scale, Wagon J. R. Stretesky et al.
Scraper, Road W. Gruner
Scraping apparatus F. Previts
Screen T. J. Sturtevant
Screw-cutting die J. F. Linehan
Seat cover, Toilet or water closet
..... R. D. Quackenbush
Seed huller, Cotton R. W. McLean
Self-lighting burner F. A. Butler
Separating heavy and light comminuted
materials, Means for J. D. Nairne
Separation of organic compounds at low
temperatures W. E. Masland
Sewing machine J. C. Goodwin
Sewing machine F. A. Reece et al.
Sewing machine F. H. Richards
Sewing machine, Book F. Kugler
Sewing machine, Buttonhole G. S. Hill
Sewing machine, Buttonhole C. A. Dahl
Shade-roller support, Adjustable
..... H. J. Druffel
Shears T. Kresen
Sheet feeders, Device for releasing comb-
ing wheels in G. Spiess
Shield, Ornamental S. Suraci
Ship's table J. Zsilavetz
Shock absorber W. Reynolds
Shock absorber I. C. Richards
Shock absorber C. F. Boidot
Shock-forming machine P. Ketelsen
Shoe machine, Automatic E. E. Winkler
Shoe-polishing machine G. B. Grafton
Shoe, Sporting F. Cucinotta
Shoe, Stitch down W. S. Shaft
Shoes, Self-buttoner or G. W. Ayres
Shoes, Vamp stay for F. W. Merrick
Sign, Rotary wind-actuated sheet metal
..... C. Stollberg
Signals by light, Automatic control of
..... W. A. Moffett et al.
Silk-stretching and drying machines, Fiber-
covered metallic tubing, a device for
..... J. Knott
Smoke-consuming device D. Townsend
Smoke preventer B. F. B. Fairbrother
Smoker's utensil J. H. Astruck
Sodium and potassium salts from mixtures
thereof, Recovering (2 pats.) C. E. Dolbear
Sofa and bed, Convertible J. F. Kampe
Soldering iron L. M. Lasley
Sound-producing device J. W. Timmons
Spark plug J. J. Platt
Sparkling device S. Wheatley et al.
Speedometer drive for vehicles
..... F. E. Watts et al.
Spike C. A. Forrest
Spinning mules, Cop-forming mechanism for
..... G. C. Hawkins
Spinning mules, Reversing mechanism for
the band cylinders of (Reissue) J. H. Ryalls

Spinning-machine roving clamp. G. F. Roberts
 Spinning ring. M. H. Maloney
 Splice bar. S. E. Brady
 Spring equilibrators. G. L. Robertson
 Spring wheel. M. Mathiesen
 Spring wheel. G. Weaver
 Spring wheel for vehicles. W. J. Luttrell
 Sprinkler systems, Alarm device for automatic. A. C. Johnson
 Stairway, Movable. F. E. Bessler
 Stalk cutter. P. Blakely
 Steam engine. E. Luginbrehl
 Steam engine. R. L. Deau
 Steam engine. W. T. Blake
 Steam generators, Header for. A. S. Hay
 Steering gear, Electrical. J. D. Williamson, Jr.
 Stirrup. L. A. Lively
 Stirrup, Safety. J. C. Dolau et al.
 Stoker-controlling mechanism. W. J. Keuny et al.
 Store-service apparatus. C. S. Jennings
 Stove, Cooking. K. Alt
 Strainer. C. R. Vinquist
 Street-sweeping machine. J. A. Cunningham
 Surgical-bandage package. P. S. Bauer
 Swingletree coupling. G. F. Seahl
 Switch indicator. C. M. Roe
 Switch-point-operating device. D. V. Hochstetler
 Switch-stand-crank mechanism. F. C. Anderson
 Syringe, Rectal. A. C. Eggers
 Target-operating mechanism. C. E. Weurich
 Telephone. P. L. Jensen et al.
 Telephone support. R. M. Allen
 Telephone system. W. A. Fricke
 Telescope, Multifocal. F. B. Warner
 Telescopes, Cross-wire frame for firearm sighting. T. A. Fildjeland
 Tenpin. E. G. Willson
 Textile or other fabrics or materials, Apparatus for stretching. A. Livesey
 Ticket and card holder. Car. J. O. Gardner
 Tie clasp. J. Kirby
 Time recorder. C. E. Larrabee
 Time recorder. H. T. Goss
 Time recorder. W. H. Bundy
 Tin, Recovering. W. Hoskins
 Tinsmith's furnace. C. J. Johnson
 Tire fastener, Detachable. J. D. Bowne
 Tire for vehicles, Resilient. P. Lavelle
 Tire, Resilient. N. L. R. P. and J. F. Baker
 Tires, Liner for. S. E. Covington
 Titanium, cyanonitrid, Producing. S. Peacock
 Tobacco-pipe appliance. W. H. Baer
 Tobacco press. J. R. Maxwell
 Toilet comb. C. F. Karr
 Tool holder, Combination. W. L. Hane
 Torch. H. Brousseau
 Torch, Mosquito. C. M. McGinley
 Torpedo-driving mechanism. F. M. Leavitt
 Toy. A. Kohler
 Toy. E. Logan
 Toy wall telephone. M. and W. Kanter
 Transmission of intelligence, Automatic exchange system for the. F. S. Coulter
 Trap. B. P. Saunders
 Traversing water or other fluid mediums, Apparatus for. P. C. Hewitt
 Trolley. J. E. Geiger
 Trunk, Collapsible. W. L. Urdang
 Tube expander and flanger. B. O. Froume
 Tubes and apparatus therefor, Process of forming. L. H. Brinkman
 Tunnel and constructing same. G. W. Jackson
 Turbine. F. M. Leavitt
 Turbo compressor. H. Juukers
 Type holder. H. C. Gammeter
 Type-holding device. H. C. Gammeter
 Type or matrix. L. E. Morrison
 Type-writing machine. G. H. Smith
 Type-writing machine. F. W. Hillard
 Typographical machine. R. O. Boardman
 Typographical machine. A. W. E. Guest
 Typographical machine. L. E. Morrison
 Undergarment, Union. B. Gibbs
 Unit or grid. E. C. Van Glahn
 Valve. C. E. Schreidt
 Valve. J. M. Palmer
 Valve, Automatic air. C. H. Simmons
 Valve, Automatic steam-pipe-isolating. J. Loll
 Valve, Double-flap check. H. W. Reynolds
 Valve, Engine. A. B. Mohler
 Valve for gas manifolds, Automatic air. E. T. Scudder
 Valve gear for four-stroke cycle explosion-engines, Slide. H. Huckel
 Valve mechanism for air compressors. C. Day et al.
 Valve-operating mechanism, Shut-off. W. A. McFarland
 Valve structure. S. B. C. E. and W. R. Hill
 Valve, Tank-filling. O. C. Ritz-Woller
 Valve, Thermostatic. G. F. Wentz
 Vehicle attachment. A. Wedge
 Vehicle control levers. G. F. Larkin
 Vehicle fender. J. H. Jenkins
 Vehicle heater and foot rest. A. J. Johnson
 Vehicle, Motor. R. Huff
 Vehicle passenger register. E. Priestman et al.
 Vehicle spring equipment. A. Decker
 Vehicle wheel. E. Z. Crow
 Vehicle wheel. J. F. Middleton
 Vehicle wheel, Road. S. H. Cope
 Vehicles, Draft anchor for motor. M. C. Huff
 Vehicles, Weight indicator for loaded. C. Shepherd
 Vending machine. A. F. Englerth
 Vessel closure. J. C. Eichhorn
 Vessels, Buffer for. M. Reppa
 Vest. I. Kessler
 Vibration eliminator. W. Reynolds
 Vibrator. E. P. Rudolph
 Wagon. W. M. Thompson
 Wagon, Ammunition. K. Voller
 Wagon-body support. A. B. McRae
 Wall construction, Bond for hollow. C. B. Harp
 Wallet. J. R. Cardwell
 Washing apparatus. E. A. Hawthorne
 Watch case and movement lock. J. W. Rushton

Water purification, Apparatus for use in. F. M. Leavitt
 Water, Purification of. F. M. Leavitt
 Water, Purifying. W. Drechsler
 Well-drilling device. H. R. Decker
 Well screen. M. E. Layne
 Wheel chair, Invalid's. W. Diemer
 Wheel construction. H. W. Sanford
 Wheel guard. W. C. Piggott
 Wheel rim, Vehicle. J. R. Gammeter
 Wheels, Machine for cutting spherical involute teeth on bevel. H. Perrot
 Wheels, Removable rim attachment for vehicle. M. Kuller
 Wind motor. L. L. Kuller
 Winding machine. F. S. Rand
 Window frames and the like, Machine for ornamenting. A. H. Wallis
 Window cleaner. A. J. Fish
 Window-cleaning platform. H. Bottjer
 Window frame. W. Schafer
 Windows and the like, Hanging for. E. F. Stiner
 Wire clamp or analogous device. K. Nuriar
 Wire ropes, Manufacture of. R. T. Skeltou
 Wire stretcher. J. E. Potter, Jr.
 Wood-filling composition. T. L. Thompson
 Woodworking machine. C. G. Wilderson et al.
 Wrench. F. H. Draper
 Wrench. M. Goehring

ISSUED MARCH 3, 1914.

MECHANICAL PATENTS.

Acetylene generator. E. R. Angell
 Acids, Alkylalkoxymethyl esters of cresotinic. J. Callen
 Addressing envelopes, Manifolding device for. W. T. Smith
 Adjustable bracket. W. S. Graham
 Aeroplanes, Post connection for. L. F. Miller
 Agricultural implement. E. H. Cox
 Airship-driving mechanism. P. G. Zimmermann
 Album. H. Uffner
 Alunite, Apparatus for treating. H. F. Chappell
 Alunite, Calcining. H. F. Chappell
 Ammonia from its constituents, Synthetic preparation of (2 pats.). A. Matignon
 Ammonia, Producing. C. Bosch et al.
 Amusement device. W. A. Morey
 Animal trap. H. H. Ellborg
 Anti-rail creeper. H. C. Elfborg
 Anvil attachment. J. R. Stull
 Arm or support, Adjustable. W. Erwin
 Asphalt-chopping machine. C. E. Bathrick
 Asphalt from crude oil or residuum therefrom, Manufacture of. C. B. Forward
 Auto turn jack. W. Willet
 Automatic brake. D. A. Matthews
 Automatic drier, Continuous. C. A. Wendell
 Automobile bumper. A. L. McGregory
 Automobile emergency wrench. J. Lukowski
 Automobile fender. C. Pelter et al.
 Automobile horn. H. H. Frey
 Automobile light and indicator. R. K. Schieb et al.
 Automobile lock. J. A. Campbell
 Automobiles, Rim for steering wheels of. B. Kormendy
 Ax and pick, Prospector's. W. E. Seelye
 Axle, Jury. F. H. Sprung
 Bait holder, Fish. B. G. Pfeiffer
 Balance, Safety. M. G. Houghton
 Beam and girder. W. P. Anderson
 Bearing, Pulley. A. E. Rhoades
 Bed. F. J. Crouch
 Bed-bottom fabric. A. Rhenstrom
 Bed bottom, Spring. J. P. Leggett
 Bed cooler or heater. G. F. Shepard
 Bed, Invalid. J. A. Gosnell et al.
 Bed, Portable folding. R. H. Anderson
 Bed spring. R. J. Kelly
 Bed-spring tightener. A. Ponton
 Beds, Canopy for open-window sleeping. W. L. Rice
 Bedstead attachment. T. A. Thompson
 Bee escape. H. D. Rogers
 Beer cooler. C. Bieger
 Beet blocker. H. W. and A. G. Gribler
 Belt shifter. A. C. Pletz
 Binder. B. Rothenburg
 Block-signaling system, Automatic (Reissue). D. J. McCarthy
 Body catcher. C. E. Labady
 Boiler-washing system. W. M. Saxton et al.
 Book, Account. W. H. Maxwell
 Book marker or indicator. W. A. Ruffy et al.
 Boot or shoe. R. E. Bartels
 Bottle, Non-refillable. E. C. Fuchs
 Bottle, Non-refillable. L. C. Helmeamp et al.
 Bowling pin. J. Schlegel
 Box-blank machine. J. J. Miller
 Box-making machine. F. R. Harris
 Brick, Refractory (2 pats.). H. Wessling
 Brush, Fountain. T. C. Ingram
 Brush, Reservoir. R. Tomlich
 Brush, Shaving. H. Robinson
 Bucket for hoist towers. L. A. Clark
 Buckle and band. G. E. Figg
 Building slab. L. Baumgartl
 Button. M. Melzer
 Button-fastening machine. G. W. Perkins
 Cabinet. W. F. Webb
 Cake turner and fork, Combined pan. E. L. Emory
 Camera-carrying case. W. F. Morris
 Camera, Photographic. M. and L. Mandel
 Canned goods, Apparatus for sterilizing. L. E. Arnold
 Canopy. E. Hanigan
 Car construction. W. A. Stearns
 Car door, Freight. P. M. Elliott
 Car, Freight. P. M. Elliott
 Car, Railway construction. W. R. Bell
 Car step, Extensible. J. P. Deimling
 Car-stop-operating system. F. D. Blake
 Car-wheel lubricator, Pit. G. Weinschenker
 Cars, Pivot-bearing for railway. H. E. Petty
 Cars, Street and station indicator for. A. Fernandez
 Carbureter. B. Drysdale
 Carbureter. N. C. Stamps

Carbureter. E. A. Bessom et al.
 Carbureter for internal-combustion engines. F. Bayerley
 Card holder. E. H. Cooper
 Casing wrench. T. J. Griffin
 Cash register. W. M. McCarthy
 Casting apparatus, Metal. J. D. Coney
 Chain clasp or safety catch. D. E. Hemphill
 Chair attachment. H. Greenwood, Sr.
 Chair, swing and jumper, Combined. A. C. Seeger
 Chandelier. W. Potts
 Chaplet. O. F. Lindberg
 Check, Baggage. T. G. Portmore
 Chemical heater. A. L. Radlein et al.
 Chicken-leg-securing device. F. K. Vallo
 Chuck. A. V. Hannifin
 Cigar and cigarette, Automatically-lightable. L. Besson
 Cigar-banding machine. F. O. Woodland
 Cigar-making machine. J. D. Lacroix
 Circuit breaker. C. E. Carpenter et al.
 Clock. J. E. Gnedry
 Clock. A. M. Yeakel
 Clock, Alarm. E. E. Gage
 Closet-rinsing device, Sanitary. J. P. Goverts
 Cloth-cutting machine. H. L. Young
 Clothes-line reel. N. W. Trautner
 Clothes rack. S. C. Thompson
 Clutch. F. G. Rathsum
 Clutch, Friction. N. J. Wigginton
 Clutch mechanism, Friction. G. L. Brown
 Coat hanger. S. C. Rubin
 Coating objects with subdivided material. F. F. Bradley
 Cock, Safety. J. Winkler
 Cock, Signal. B. J. Graham
 Coin, Device for facilitating the handling of. S. B. Colby
 Collar. C. W. T. Davies
 Collar, Horse. J. A. Prater
 Coloring matters and making them, Anthraquinone. M. H. Isler
 Comb cleaner. J. Nassauer
 Computer, Time and wage. T. J. Falvey et al.
 Computing machine. I. S. Dement
 Concentrating tables, Head motion for. W. F. Deister
 Concentrating units, Mechanism for operating (2 pats.). W. F. Deister
 Concrete floor construction, Reinforced. R. Anderson
 Concrete piles and piling elements. M. M. Upson
 Concrete railway tie, Reinforced. H. Wilkins
 Concrete structures, Mold for forming, sunken. R. H. Bolen
 Cooker, Steam. A. W. Meyer
 Cooking utensils, Drain lid for. G. Stricker
 Copper, Hydrometallurgy of. E. R. Weidlein
 Corset closure. I. Roth
 Corset, Prescription. M. E. Jamme
 Cotton gin. S. D. Murray
 Cotton picker. R. W. Ivey
 Counting machine. O. C. Davis
 Coupling. C. C. McGuire
 Coupling. W. S. Sutton
 Cover-coating apparatus. T. L. Taliaferro
 Crate, Shipping. A. F. Cogswell
 Crayon trough. A. Duffield
 Crushing and grinding mill. A. Caldognetto
 Crushing roller. M. A. Smith
 Cuff link and the like. C. W. T. Davies
 Cultivator. L. E. Kelley
 Cultivator. J. Westmoreland
 Current regulator, Alternating. S. E. Johannesen
 Currycomb. R. F. Simmons et al.
 Curtain holder. J. Greenhouse
 Cuspidor. H. E. Weber
 Cutter bar and bushing therefor. F. J. Lapointe
 Cutting device. E. N. Humphrey
 Cycle tandem seat, Motor. J. A. Peterson
 Dam construction. E. B. Hunt
 Defecant and making same. W. J. Wayte
 Dental-waist receiver, Aseptic. F. B. Bostwick
 Dipper tooth, Reversible. W. S. McKee
 Display stand, Portable. W. Schweitzer et al.
 Distilling crude oil and other substances, Apparatus for continuously. C. B. Forward
 Distilling glycerine. F. J. Wood
 Door-operating device. P. C. Brenner
 Doors and operating mechanism therefor. Hinged. H. Rountree
 Draft equalizer. J. Miller
 Drawer for filing cases and similar structures. H. O. Amundson
 Drawing machine. T. M. Larsen
 Drinking cup, Sanitary. B. L. Rosenbloom
 Driving connection, Resilient. J. E. Webster
 Duplicating machine. A. H. Gussman
 Duplicating machine (2 pats.). S. A. Neidich
 Dust collector. W. H. Wilkey
 Dyeing fibrous materials, Machine for. T. Allsop et al.
 Dyestuff, Blue. H. Schweitzer et al.
 Electric braking with alternating-current motors. E. F. W. Alexanderson
 Electric circuits and apparatus, Arrangement for protecting. P. V. Hunter
 Electric conduit. N. W. Puch
 Electric-current controller. P. J. Ray
 Electric-current-distributing systems, Cable for. P. V. Hunter
 Electric furnace. C. C. Whitmore
 Electric generator. J. F. Kelly
 Electric machines, Brush-lifting device for dynamo. G. H. Krauskopf
 Electric machines, Brush-lifting device for dynamo. E. Mattman
 Electrical chemical testing system. J. E. Angell
 Electrical heater. G. A. and L. Edmison
 Electrical machine. W. A. Price
 Electrode having protective covering and producing same, Carbon. C. H. Schroers
 Electromagnetic device. W. W. Dean
 Electromagnetic device. H. P. Clausen
 Elevated carrier. F. L. Putman
 Elevating apparatus. J. H. and A. E. Gilman
 Elevator brake. F. H. Thurber
 Elevator indicator. F. A. Boedtercher
 Embroidering machine. K. Keller et al.

Embroidery hoop. J. G. McClellan
 Engine-primiting mechanism, Explosive. L. J. Perkins
 Engine starter, Gas. W. S. Harrison
 Engine-starting apparatus, Internal-combustion. G. Unterberg
 Engine stop. M. Risher
 Engine-throttling device, Hydrocarbon. J. L. Schiller
 Engines with starters, Fuel system for. G. R. Vanecko
 Eraser, Blackboard. T. H. Colclough
 Evaporator. T. H. Colclough
 Exercising apparatus, Electromagnetic. G. J. Kay
 Exhaust apparatus. M. S. Wright
 Explosion engine. E. L. Thompson
 Explosive engine. A. E. S. Fitzgerald
 Facing or milling machine. J. A. Patterson
 Fan, Automatic. A. A. Suter
 Fan for railway cars, Electric. E. I. Dodds
 Fastener. L. Reiter
 Fastener for envelopes and other containers. W. Weidlich
 Fasteners, Spring socket for stapling. A. H. Green
 Fats and oils, Bleaching. F. H. Moore
 Fence machine. J. S. Starnes
 Fence post and wire tightener. L. S. Starnes
 Fibers from plants, Device for the preparation of. G. M. E. Ross
 File, Bill. C. L. Passmore
 Filter. H. Reiser
 Filter for atomizers and other devices. C. I. Wright
 Filtering material, Manufacturing. F. Pott
 Filtering or dewatering machine for ore pulp, Centrifugal. J. C. King
 Fire-hose reel. C. Ridley
 Fire-resisting curtains, Mechanism for actuating trip-release devices for. W. P. Gibson et al.
 Fire shutter, Automatic. A. Rush
 Firearm. J. Sikes
 Firearm sight. F. W. H. Porter
 Firearms, Safety device for repeating. J. H. Wheeler
 Flange lubricator. D. Reid
 Flue cleaner. G. F. Pierce
 Fluid meter. H. C. Alzer
 Fluids having different characteristics, Method and means for separating. C. S. Brown
 Focusing device. J. T. Clarke
 Food and producing the same, Article of. D. Brainin
 Food, Composition of matter to be used for a. G. H. Mowe
 Food product and preparing the same. W. H. Heine
 Fruit-grading machine. C. H. Baker
 Furnace grate. W. M. Duncan
 Furnace grate. D. J. McKenzie
 Furnaces, Apparatus for spreading pyrites in roasting. O. Battaille et al.
 Furniture polish. E. Knox
 Furrow opener, Disk. F. R. Packham
 Game counter. J. D. McCracken
 Garden implement. J. S. Ward
 Garment. W. P. McQuillen
 Garment. C. H. Wells
 Garment-cementing machines, Attachment for. S. Lipson
 Garment-exhibiting apparatus. F. T. Barton et al.
 Gas boiler. C. H. Hook
 Gas burner and water heater. J. A. Frisk
 Gas engine. L. H. Mer, Jr.
 Gas engine. H. F. Will
 Gas extinguisher, Automatic. E. H. Hawley
 Gas generator, Acetylene. K. W. Hollingsworth
 Gas holders, Guide frame for. H. J. Stoffels
 Gas indicator, Indammable. A. Guasco
 Gas-jet regulator. S. P. Kraus
 Gas producer. H. E. Smythe
 Gasket. C. F. Hettinger
 Gearing. F. G. Marbach
 Gearing. W. E. Martin et al.
 Gearing, Speed reduction. V. G. Apple
 Glass lens. J. A. and G. Young, Jr.
 Glue, Manufacturing vegetable. F. Lehmann et al.
 Grain binder. J. E. and W. H. Powers
 Grain-scouring device. S. S. Hess
 Grain shocker. C. H. Lindekugel
 Grate. H. F. Langenhof
 Grate bar. G. E. Camp
 Grate, Forced-draft. R. G. Long
 Grease cup. N. W. Cummins
 Grease cup. H. A. Brockhaus
 Grinding and polishing machine. R. Ochsheim
 Grinding implement. S. Menyhert et al.
 Grinding machine. P. Bogey
 Grinding-machine gear casing. M. T. Thompson
 Grubbing machine, Root (2 pats.). A. L. Hallbauer
 Gun barrel. H. Rabba
 Gun, Barrel recoil. H. Rabba
 Gun mount. L. V. Benet et al.
 Gun shells, Rope sling for. J. M. Snee
 Guns, Cartridge-discharging attachment for. J. Kramer
 Hair fastener. M. Toth
 Halter. L. Curtis
 Hame and tug coupling. C. H. Hulson
 Hammer. J. A. Leslie
 Hand bag. A. Rosendale
 Hard body for wearing surfaces and the like. E. Weintraub
 Hardening or mummification of human and animal bodies and their organs. G. and P. Fratarcangeli
 Harrow. W. J. Stokes
 Harrow, Folding. J. Mason
 Hat-pin fastener and protector. J. M. Christon
 Hat-pin guard. V. Michet
 Hat-pin protector. M. E. Blessing
 Hat, Ventilated. F. H. Lee
 Hats, Bandeau for. S. and H. Thornley et al.
 Hatchet. F. A. Burgess
 Hay loader, Automatic. W. J. Wittenburg
 Headlight, Street car. J. Fleck
 Hennyery. H. Barnett

Heel blanks, Machine for stacking (2 pats.) J. H. Pope
 Heels or the like, Clamping device for J. H. Weiter
 High chair H. Taylor
 Hoe, Automatic A. Thompson
 Holding and operating means J. B. Kelly
 Hole closure D. J. Diel
 Hoof-cutting and hoof-opening machine F. M. Keane
 Hopper, Feed F. W. Ruggles
 Horseshoe J. K. Levey
 Horseshoe W. J. Twist
 Horseshoe toe calk J. W. Bamford
 Hose connection R. De Kuyper, Jr.
 Hose plug, Combination W. Huisveld et al.
 Hub, Wheel D. T. Hastings
 Hygrostat V. F. Davis
 Ice cream freeze F. Tyson
 Ignition device F. M. Leavitt
 Ignition systems, Starter switch for dual G. W. Wacker
 Infusible condensation product L. H. Baekeland
 Ink T. M. Price
 Inking apparatus S. A. Neidich
 Internal-combustion engine L. Illmer, Jr.
 Internal-combustion engine of the compression type W. S. Harley
 Invoice rod, Portable C. M. Carew
 Ironing machine M. J. Reilly
 Kettle J. Szunyik
 Knife O. F. Swasey
 Knitting machines, Needle cylinder for circular H. Swinglehurst
 Lamp S. Mazzeo
 Lamp bracket A. H. S. Swan
 Lamp socket C. E. Godley
 Lamp socket, Electric R. B. Benjamin
 Lamp socket, Incandescent H. Marks et al.
 Lamp socket structure, Electric-incandescent J. P. Naylor
 Lamp-supporting device (2 pats.) R. B. Benjamin
 Lamps, Combined reflector and refractor for H. Pickhardt
 Lamps, Guard for incandescent electric C. A. Lehman et al.
 Latch and lock, Mortise A. C. Chesley
 Lathe S. F. Taylor
 Leguminous products for edible purposes, Preparing E. U. Stephens
 Letter for signs G. Mayerle
 Life raft E. R. Greene
 Light, Producing C. P. Steinmetz
 Line-casting machine J. R. Rogers
 Linotype machine J. R. McRae
 Linting and delinting machine attachment W. H. Camp
 Liquid-applying device G. Smith
 Liquid-carrying and dispensing box L. E. Buchman
 Liquid-gage lock O. C. Ritz-Woller
 Liquids, System for ozonizing G. F. Butler
 Loom, Pile-wire T. P. Walsh
 Loom, Weft-replenishing H. Wyman
 Looms, Spool-changing apparatus A. G. Koehlin
 Lubricating device (2 pats.) E. Armstrong
 Lubricator D. F. Kilgour
 Magneto L. J. and L. E. Seivson
 Mail-box money holder E. Clay
 Mail-sorting case W. W. Lotspeich
 Manifold device A. R. Sampson
 Manure spreader C. Shabley
 Match lighter, Mechanical E. D. Fitzpatrick
 Mattress T. H. Benton
 Measuring and indicating blood pressure, Apparatus for F. A. Faught et al.
 Measuring instrument, Distance J. Humbrecht
 Measuring instrument, Electrical K. Gyr
 Measuring instruments, Bearing for the shafts of W. H. Pratt et al.
 Measuring or weighing machines and devices, Indicator for T. W. Fitzgerald
 Meat compound, Preparing a preserved N. J. Torkelsen
 Metaresol and formaldehyde, Infusible condensation product of L. H. Baekeland
 Metal-cutting tool B. M. W. Hanson
 Metal structure, Expanded H. E. White
 Metallurgical furnace H. D. Hibbard
 Metallurgical method H. Kuzel et al.
 Mirror support for dressers, Swinging J. Booth
 Mirrors for wardrobes and dressers, Swinging J. Booth
 Miter joint fastener W. Goodrow
 Molders' sand, Apparatus for mixing and screening G. H. Martin
 Molten materials, Apparatus for pouring C. W. Lummis
 Mower H. C. Bjering
 Mowing machine J. B. Turner et al.
 Muffler A. J. Patten
 Musical instruments, Pneumatic playing attachment R. J. Bennett
 Musical instruments, Pneumatic-electric tracker bar for C. W. Doricott
 Negotiable instrument F. T. Crichton
 Net, Landing G. A. Borgardt
 Nut lock J. Santarangelo
 Nut lock W. R. Wilson
 Nut, Locking R. Watres
 Observation stop, Adjustable E. P. Bullard, Jr.
 Odometers, Driving connection for C. H. Veeder
 Oil atomizer E. Lindmueller
 Oil burner J. W. Matlock
 Oil burner J. R. Arthur
 Oil-burning apparatus C. G. White
 Oils with ultra-violet light, Treating petroleum C. Ellis
 Operating table for use in animal research K. Stebbins
 Orchard heater W. C. Scheu
 Ore-concentrating apparatus W. F. Deister
 Ore roasting and sintering apparatus J. E. Greenawalt
 Ore-sintering apparatus A. F. Plock
 Overshoe retainer S. M. Palmer
 Packing machine C. S. Nyberg
 Packing, Metallic piston A. Soderlund
 Packing, Metallic rod C. R. Crump et al.
 W. Lange

Packing ring, Piston F. Van Der Cruyssen
 Padlock for steam shovels and the like M. C. Ritchie
 Pamphlet coverer M. C. Ritchie
 Paper receptacle L. W. Farmer
 Pasteurizing machine N. F. Nissen
 Paving apparatus R. D. Baker
 Pedal trap work F. Engelskirchen
 Pen, Fountain T. K. Felch
 Pen, Writing H. S. Brewington
 Pencil attachment A. H. Blood
 Photographic apparatus E. Goldensky et al.
 Photographic-film developing and drying device C. H. Knoblauch
 Piano action R. B. Fowler
 Piano pedal R. Hope-Jones
 Picture-exhibiting apparatus, Moving J. U. Houseman
 Picture films, Reel for moving J. H. Rees
 Picture machine, Moving J. A. Cameron
 Pile driver P. W. Leen
 Pile-driving machine T. L. Redding
 Pile fabric in imitation of natural fur, Woven F. Hammer
 Pilot or fender J. Summers
 Pistol, Automatic V. Falco
 Pitometer H. T. Havill
 Placer machine C. E. J. Anderson
 Placer-treating apparatus C. E. J. Anderson
 Plane, Iron T. S. Carlisle
 Planer-stop mechanism C. H. Usher
 Planter T. W. Suggs
 Planter, Corn S. C. and R. F. Oden
 Plow attachment J. J. Oosterhous
 Plow, Side-ballast unloading J. Suggitt
 Plug, Connector G. C. Knauff
 Pocket, Safety J. Forman
 Pocket, Safety T. B. Ryan
 Pool or other game frame T. J. Madigan
 Pool-table attachment M. S. Post et al.
 Power mechanism P. W. Hodgkinson
 Power-transmitting device, Spiral-gear C. H. Warner
 Press-head-operating apparatus C. R. P. Pool
 Pressing machine F. M. Betz
 Pressure gage M. L. Chilson
 Printing-couple appliance S. A. Neidich
 Printing device W. F. Headley
 Printing feeding mechanism S. A. Neidich
 Printing form W. J. Adam
 Printing press N. Sadovsky
 Printing-press cushioning device R. Miehle
 Printing presses, Piling table for R. Miehle
 Printing-surface holder S. A. Neidich
 Projectile A. F. Shore
 Projection apparatus, Spot-light attachment for E. P. Rauschert
 Pulp, Apparatus for treating and delivering W. F. Traudt
 Pulp-feed regulator E. Beecher
 Pulp grinder J. W. Walters
 Pulverizer, Soil L. Chesser
 Pump, Centrifugal A. G. M. Michell
 Punching-machine attachment R. L. Hibbard
 Purse A. W. J. Livingston
 Puzzle F. L. Shipman
 Radiator bracket W. F. Wolfe et al.
 Radiator tubes, Dies for making J. Gabrielson
 Rail bond T. C. Folsom
 Rail, Guard H. G. Ellborg
 Rail joint J. R. Keller
 Rail joint, Vertical-locking G. H. Hoelscher
 Rail splice W. Slater
 Rail tie D. C. Blose et al.
 Rail tie and fastener W. Biery et al.
 Railway cross tie C. W. Giles
 Railway crossing R. A. Dyer, Jr.
 Railway tie C. H. White
 Railway tie D. H. Hynds
 Railway tie W. N. Stewart
 Railway tie H. Guderjahn
 Railway vehicle magnet and roadway therefor A. H. Fox
 Rake C. G. Bradford
 Ranges, Piping for gas H. C. Maul
 Razor-cleaning attachment for barbers' chairs A. Bongiovanni
 Razor, Safety E. J. Boyler
 Razor, Safety S. Kitzes
 Receptacle B. Jahn
 Receptacle cover and shade holder, Combined F. W. Wakefield
 Refrigerator M. H. Slater
 Registering and change device, Automatic D. Gailbis
 Relay J. A. Birsfield
 Ribbon-winding and reversing mechanism W. J. Burchett
 Rifle, Repeating air A. Eck
 Rifles, Device for loading magazine R. J. Petersen
 Riveting machine C. Snodgrass
 Road-surfacing machine T. J. McDonald
 Rock-drilling machine C. C. Hansen
 Rolling-mill mechanism C. M. Grey
 Roof or wall covering G. F. Bishopric
 Roofing member B. H. Gedge
 Rotary engine or pump, Horizontal J. Neilsen
 Rubber, Machine for cleaning crude W. R. Smith
 Sack, Self-closing B. W. Simer et al.
 Sander C. A. Johnson et al.
 Saw F. Peterson
 Saw guard, Circular W. B. Gardiner
 Saw guard, Circular W. Jenkins
 Saw, Meat A. S. Erquhart et al.
 Saw set W. H. Swainston
 Saw swage F. A. Breeze
 Saws, Spring-block set for E. Godin
 Sawing machine, Tree J. Jack, Jr.
 Screw E. J. Foreman
 Screw blade for impellers M. Donath
 Seal J. C. Davis
 Sealing device, Envelope C. F. Hansen
 Sealing rings for glass or porcelain covers, Forming T. L. Taliaferro
 Seat and walking cane, Combined J. W. Vallier
 Sewing-machine feeding mechanism J. P. Weis
 Shade holder, Window H. A. Mowrey
 Sharpener, Saw F. A. Breeze
 Sharpening device M. L. Hawks
 Shears handle M. Beer
 Sheet-feeding apparatus L. von Sazenhofen
 Sheet-feeding device, Automatic J. de Blonay
 Ships, Hull of steel S. Holmes
 Shirt C. C. Filson

Shock absorber R. M. Lyon
 Shock absorber, Vehicle spring J. N. Lewis
 Shoes, Arch support for P. Iacovino
 Sidewalk C. C. McDonald
 Sign, Illuminated J. A. Bergmann
 Sign, Swinging M. Mayer
 Silo, Combination wood and concrete W. D. Pugh
 Singeing machine W. W. Sibson et al.
 Sink, Dumping J. D. Hoffa
 Siphon S. B. Drinkhouse
 Skates, sleighs, skees and the like, Blade for L. von Koppen
 Sluice gate, Automatic G. Larson
 Soap dispenser, Powdered E. C. Wideman
 Soap holder J. J. Lisbae
 Socket shell and holder combined L. W. Andersen
 Sound-reproducing machines, Automatic brake for E. O. Klemm
 Sound transmitter, Electrical M. E. Pearson
 Spark-advancing and retarding mechanism E. L. Pardee
 Spark plug J. R. McDowell
 Speed indicating and recording device W. K. Menns
 Speed-indicating instrument C. H. Warner et al.
 Spindle step J. R. Mitchell
 Splint, Adjustable J. F. Baughman
 Spraying apparatus C. Reichert
 Spring system W. H. Son
 Springs, Hanger construction for auto running gear E. F. Goodman
 Sprinkler for lawns, golf greens, gardens, and the like P. Zeyssolff
 Stairway, Movable F. E. Bessler
 Stamp, Hand E. Fisher
 Stanchion F. O. Wood
 Steam generator, Auxiliary J. J. Plank
 Steam trap L. Coster
 Steering gear F. C. Kainer
 Steering wheel C. T. Schroyer
 Stirrup, Safety J. Kenyon
 Stitch transferring and doubling device L. N. D. Williams
 Stoker, Mechanical W. M. Duncan
 Stone-dressing machine H. J. Beck
 Storage bin R. E. Baker
 Stove, Gas O. C. Syvertsen
 Stove, Gas F. Will et al.
 Stovepipe or chimney thimble W. Petersen
 Straw-dispensing apparatus T. B. Long
 Street sweeper D. N. Towe
 Supply holder S. I. Kamigashira
 Supporting and delivering device F. Geiger
 Switch H. W. Cheney
 Switch mechanism W. Herskovitz
 Switch-stand lock (2 pats.) C. Wood
 Syringe nozzle, Vaginal S. L. Kistler
 Table S. C. Thompson
 Tachometers for temperature variations, Means for compensating E. M. Thompson
 Tap and valve J. Scherr
 Tap extension A. Walz
 Telegraph system I. Kitsee
 Telephone system H. P. Clausen
 Telephony, Transmitter for wireless W. T. Ditcham
 Tent A. W. Barnard
 Thread guide and binder, Spool A. Roller
 Ticket, stamp, and card holder, Railway T. H. Edmonds
 Tide-power mechanism W. T. Erickson
 Tie plate W. M. Giotfelty
 Tile, Cement mortar or concrete roofing I. H. Freund
 Time-controlled mechanism, Coin-operated W. S. Schott
 Time recorders, Record-dial-supporting device for watchmen's C. H. Jenkins
 Tin or can for hams or like articles of food T. Meyer
 Tire H. J. Griswold
 Tire G. Restucci
 Tire, Combined elastic and pneumatic F. H. Wilbur
 Tire protector W. Jacobson
 Tire, Resilient H. Capdevielle
 Tire, Vehicle J. Stromeyer
 Tire, Vehicle C. A. Swinehart
 Tire, Vehicle P. B. Dawson
 Tire, Wheel W. E. Budd
 Tobacco pipe F. T. Murata
 Toilet seat, Folding H. L. Block
 Tool J. L. Hoffman
 Tool O. Z. Contant
 Tool, Fluid-actuated M. Maximilian
 Tool, Percussive L. C. Bayles
 Tooth, Artificial A. E. Fallows
 Toy J. V. Klein
 Toy, Animated A. Gund
 Toy, Pyrotechnic J. B. Van Doren
 Track sander W. B. Rogers
 Traffic-controlling apparatus C. J. Coleman
 Train-stopping apparatus, Automatic J. M. Roe
 Train-stopping device J. L. Eirich
 Transmission mechanism A. B. and W. Brockman
 Trap door H. H. Schroyer
 Tray, Folding pasteboard H. J. Bruggeman
 Tree protector C. H. Sandahl
 Trolley head O. N. Iverson
 Trolley-wire connector J. Kirby
 Trousers, Waistband lining for A. A. Brown
 Truck S. P. Griffin
 Truck, Car F. Steffens
 Truck, Self-loading and unloading barrel J. S. Goble
 Trunk C. R. Dennis
 Trunk fastener S. Meledonian
 Tube expander O. Wiedeke
 Tubular bodies, Closing F. Hegewald
 Tug loop R. P. Kronke
 Turbine E. Anderson
 Turbine, Elastic-fluid C. G. Curtis
 Turbine plant, Gas H. Holzwarth
 Type case S. A. Neidich
 Type-writer attachment O. Bancroft
 Type-writing machine H. Bates
 Type-writing machine E. L. Pfunder
 Type-writing machine O. Petermann
 Type-writing-machine carriage O. Petermann
 Type-writing-machine ribbon mechanism L. C. Myers
 Typographical machine L. L. Kennedy

Typographical machine (2 pats.) A. W. F. Guest
 Typographical machine (2 pats.) J. R. Rogers
 Umbrella, Folding J. Swinland
 Undergarment J. D. Reed et al.
 Underskirt M. G. McLoughlin
 Vacuum cleaners, Nozzle and squeegee for G. Clements
 Valve A. E. Kenney
 Valve H. E. and H. C. Cox
 Valve, Emergency cut-off J. R. Synder
 Valve for explosive engines J. W. Meaker
 Valve gear, Engine (Reissue) R. C. Stevens
 Valve-operating mechanism J. Sabo
 Valve, Petcock T. H. Goulding
 Valve, Piston F. Beecher
 Valve-seat-dressing device, Adjustable G. W. Troutman
 Valve, Vent L. L. Richardson
 Vaporizer and carbureter F. G. Underwood
 Vault, Burial W. C. Reinmiller
 Vault entrance T. S. Spivey
 Vault-light construction A. Chambley
 Vehicle door antirattler H. Ervien
 Vehicle, Motor W. I. Twombly
 Vehicle running gear, Motor D. Fairley
 Vehicle, Self-propelled H. Ewing
 Vehicle suspension, Shock-nullifying A. V. Park et al.
 Vehicles, Clearer attachment for A. Carreiro
 Vending machine R. H. Morgan
 Vending machine, Coin-operated F. Warren
 Vise, Machine J. R. Saylor
 Voting machine J. H. Dean
 Voting machine A. J. Hillspie
 Vulcanite, Manufacturing a substitute for E. Knoll
 Wagon box, Knockdown F. J. Farrington
 Washbasin, Sanitary F. W. Carlson
 Washing machine, Steam J. R. Dickerson
 Weed screen J. Ehrhardt
 Well-digging or earth-boring apparatus M. Hyman
 Well-drilling tools, Clamping device for deep E. P. Windle
 Welt-beating machine F. E. Valois
 Wheel A. Stewart
 Wheel and tire therefor H. Kitcher
 Wheel rim, Vehicle E. C. Shaw
 Wheels, Emergency rim for vehicle A. Turnbull
 Windmill wheel C. O. Mason
 Window M. Smith
 Winnowing machines, Blast distributor for F. F. Landis
 Wire-netting machine J. A. Holmquist
 Wireless systems, Receiving device for W. E. D. Stokes, Jr., et al.
 Wrench J. E. Monaghan
 Wrench C. T. Harner
 Wrench E. T. Moore
 Wrench W. Carman
 Wrench F. H. Kanning
 Wringers, Mechanical movement for washing machine S. T. White
 Yoke seurer, Neck C. M. Connor

ISSUED MARCH 10, 1914

MECHANICAL PATENTS

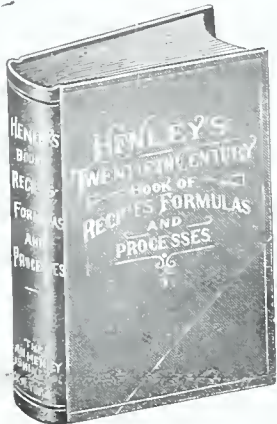
Abrasive material, Apparatus for delivering J. W. Cruikshank
 Acids and making same, Chromium compounds of oylantraquinone sulphonic R. Bohn et al.
 Adhesive material for gluing purposes E. Rampichini
 Adjustable bracket for supporting shelves or the like R. Owen
 Aeroplane R. B. Swank
 Aeroplane engine C. F. Jenkins
 Air purifier E. L. Gross
 Aircraft propeller K. Schultze
 Alkalis from natural rocks, Extracting A. Messerschmitt
 Alloys, Making titanium and other E. Kraus
 Angle finder G. Wallace
 Armor plate R. A. Hadfield
 Ash tray, Pocket J. H. Bremer
 Automobile lock H. J. Neumann
 Automobile radiator A. J. Carriere
 Automobile wheel B. B. Stapleton
 Automobiles, Differential gearing for W. F. Muehl
 Bait, Artificial E. L. Evans
 Balance sheet, Ready E. B. High
 Baseball C. S. Lincoln
 Basket M. J. Wheeler et al.
 Basket, Folding A. Zanolli
 Bath-tub vapor-cabinet appliance G. W. Caldwell
 Battery system, Storage E. A. Halbleib
 Beam D. B. Luten
 Bearing, Pressure-tight E. G. Bailey
 Bearing retainer, Ball G. H. Stahl
 Bearing, Shaft B. R. Hall
 Bearing, Thrust R. H. Rice et al.
 Bed, Spring W. Shannon
 Bed spring, Pneumatic J. J. Lisbae
 Bicycle propelling mechanism A. Laffond
 Bicycle attachment J. G. Conger et al.
 Binder for loose music J. F. Swan
 Binder, Loose-leaf (2 pats.) R. M. Watson
 Binding and sealing tape G. L. Thom
 Binding post C. F. Kettering
 Boat, Submarine F. Fenaux
 Boiler L. D. Freeman
 Boiler F. J. Frenz
 Boiler and other furnace, Steam P. Jones
 Boiler-flue-fastening means F. Schmitt
 Boiler furnace, Steam F. C. Stimmel
 Boilers, Preboiler for steam W. O. Hoppe
 Bolster, Separable body C. T. Westlake
 Bolt lock, Multiple A. S. Hill
 Bond wires and nut locks, Intermediate support for W. M. Post
 Book holder, Check E. L. Henderson
 Book, Illustrated R. H. Garman
 Books in covers, Device for retaining W. J. Kennedy
 Boot or shoe, Machine for setting lacing hooks in the upper of A. R. Havener
 Boot-tree former M. Lucchese
 Boring machine, Wood C. Greenwood

- Boring tools, Holder for metal. E. F. G. Gibbs
 Bottle, Anti-refillable. A. A. Wayne
 Bottle, Anti-refillable. C. Lukae
 Bottle closure. A. Alexander et al.
 Bottle hanger, Embalming. W. J. Strayer
 Bottle or jar protector, Milk. J. J. Tehan
 Bottle stopper and applicator. H. A. Metz
 Box. J. E. Davidson
 Box cover, Packing. S. A. Goldberg
 Box fastener. A. Hovorka
 Bracelet, Expandable. R. Loog
 Brake appliance, Derailment. W. R. Carroll
 Bridge construction. D. B. Luten
 Broom holder. P. Henze
 Brush. J. E. and L. Marcell
 Brush, Tooth. F. Reichmann
 Brush-tuft-coating machine. S. E. Jordan
 Buckle. M. D. Meserole
 Buckle. T. F. Molloy
 Buggy wheel. A. Lyles
 Building block. W. W. Smith
 Bundle carrier or conveyer. G. Marshall
 Burglar alarm. J. Hofmann
 Burnishing machine. L. A. Casgrain
 Button-making machine. P. Hanson
 Button-attaching machine. J. Kiewicz
 Cable, Wire. J. B. Stone
 Calculating machine. H. Hopkins
 Calendars, Slab-forming attachment for. J. R. Gammeter
 Camera-casing and film carrier, Combined. R. R. Livingston
 Camera, Motion-picture. C. F. Jenkins
 Can-huxing means. H. Blandford
 Car, Antirobbery and burglar-proof. T. G. Smith
 Car bodies and trucks, Flexible lock joint for. J. M. Coleman
 Car, Center entrance. W. S. Menden
 Car coupling and brake. P. K. Tucker
 Car door. F. Mathews
 Car door, Dump. R. W. Burnett
 Car door, Railway. W. L. Conwell et al.
 Car, Dump. S. Otis
 Car, Dump. J. M. Wilcox
 Car, Dumping. C. F. Rice
 Car platform auxiliary step. J. R. Kunzelman
 Car roof (3 pats.). D. W. Hawksworth
 Car roof. W. D. Thompson et al.
 Car, Tank. C. H. Coyle
 Cars and similar structures, Trap-door for railway. R. T. Aye et al.
 Carbureter. G. J. Mayer
 Carbureter. H. H. Hunt et al.
 Carbureter. J. Ruthven
 Carbureter. H. R. Barrett et al.
 Carbureter. M. Goudard et al.
 Carbureter or the like. W. C. Westaway
 Card register and cabinet. T. F. Leahy
 Cardboard, Cutting-off attachment for machines for making corrugated. S. A. Goldberg
 Cargo in bulk, Apparatus for transferring. W. G. Read
 Carousel and Ferris wheel, Movable. C. Jacobs
 Cartridge shells, Machine for drying freshly-painted. H. D. Dodge
 Casing shoe. J. A. Olinger et al.
 Caster. A. B. Diss
 Caster structure for tubular legs. A. B. Diss
 Cattle guard. J. I. Stephens
 Cellulose and obtaining the same, Compound or derivative of. E. Knoevenagel
 Centering device. G. Gabriel
 Chains on belts, Device for supporting watch. L. Hedlin
 Change holder. J. H. Maxwell
 Channel furnace for burning ore bricks. A. Ramen
 Cheese, Marking. J. J. H. Grammer
 Chronograph or stop watch. W. E. Porter
 Chuck. E. J. Blum
 Churn. G. W. King
 Cigar pockets. J. J. Dittgen
 Cigarette-making machine. R. A. Sloan et al.
 Circuit controller. S. P. Hull
 Clay cleaner. B. Jacquart et al.
 Clock. W. E. Porter
 Clock, Alarm. G. Kern
 Closure and clamp therefor, Air-tight. E. J. Feeny
 Clothes drier. E. A. Williams
 Clothes pounder (2 pats.). N. F. Ambursen
 Clothes washer. W. Murphy
 Clutch. E. Tranb
 Clutch and speed regulator. G. Rischmuller
 Clutch device, Friction. I. E. Hindman
 Clutch for scarf pins, hat pins, and the like. R. Fischer
 Coaling device. O. Bauerle
 Coaster brake. H. S. Walker
 Coffee-granulating mill. R. Burns
 Compressing wood or other elastic material. F. Ziebarth
 Compressor relief device. R. Conrad
 Concrete anchor. H. J. Smith
 Concrete arches, Building reinforced. D. B. Luten
 Concrete dock or pier, Reinforced. W. S. Ferguson
 Concrete, Lining shafts with. E. Morlae
 Concrete machine. E. N. Trump
 Container. B. C. Rockwell
 Control system. H. Maxwell
 Conveyor, Gravity. H. B. Crum
 Cooking apparatus. F. V. Detwiler
 Cooking utensil. C. Osada
 Corn-drying rack. J. S. and B. L. Bain
 Corset (Reissue). C. H. Schopbach
 Cot. A. E. Gosso
 Cotton chopper. A. O. Yeatman
 Cotton picker's vehicle. W. L. Thomas
 Cotton-seed hulls, Treating. E. C. de Segundo
 Couch and couch bed. F. J. Quincy
 Counter support. J. F. Montine
 Cow-tail-holding device. W. S. Smith
 Crate, Collapsible egg. E. T. Worster
 Crate, Shipping. G. Becker
 Crusher-head, Adjustable. E. L. Pemberton
 Cue-tip. P. Balzano
 Cuff protector or hook. E. S. Autisdale
 Cuff protector, Sanitary. G. W. Wilson
 Current collector and making the same. E. G. Gilson
 Cuff, Shirt. A. Paradis
 Current-controlling apparatus. E. L. Gale, Sr.
 Current-controlling apparatus, Alternating. E. L. Gale
 Current generator, Continuous. K. Greuner
 Current motor, Alternating. A. C. and T. R. Bell
 Curtain support. J. B. Hannon et al.
 Cuspidor. N. Hirsch
 Cutter-head knives, Instrument for laying out the edges of. G. W. Yung
 Cycle steering mechanism, Motor. D. J. Johnston
 Deacoholizing liquids. O. G. C. L. J. Overbeck
 Derrick. C. B. Jones
 Direction-indicating signal. J. J. O'Connell
 Dispensing congealed or solid substances, Apparatus for. A. Stapler
 Display rack. M. Mayer
 Distilling, cooling, heating, and similar purposes, Column apparatus for. H. A. Gasser
 Distilling crude pyroigneous acid. M. Klar
 Ditcher. C. E. Warren
 Dock structure. H. J. Brunner
 Door fastener. I. P. Milley
 Door holder. E. W. Woolley
 Door-holding device. H. H. Barnett
 Door lock, Pocket. C. F. Bellows
 Door mat. J. Schumann
 Door opener. J. and L. Reinert
 Draft apparatus, Induction. A. Fischer
 Draft gear. J. F. Courson
 Drafting and plotting instrument. H. Howard
 Drawer guide. I. Wagemaker
 Drawing press. H. J. Hinde et al.
 Drill socket. R. G. McDowell
 Drill-spindle-rotating mechanism for close-coupler drills. C. H. Peck
 Drilling and niching machine. T. F. Morrissey
 Drinking cup. F. P. Meyer
 Driving mechanism. J. C. Cromwell
 Drum, Planetary napping machine (Reissue). H. S. Greene
 Electric apparatus for driving clocks or similar mechanism. H. E. Warren
 Electric conductor support. G. Honold
 Electric elevator. C. B. Manville
 Electric furnace. S. Peacock
 Electric indicator. C. Schenck et al.
 Electric switch. W. G. Peet
 Electric transportation system. C. B. and J. F. McLeer
 Electrical circuits, Testing system and mechanism for. C. E. Beach et al.
 Electrical contact. W. D. Coolidge
 Electrical controlling apparatus. E. L. Gale, Sr.
 Electrical fixture. E. S. White
 Electrolier fitting. C. Messick
 Electrolier hanger. L. C. Reed
 Embroidery machine. J. Krusi
 Energy absorber. J. E. Engleson
 Engine. G. H. Kaemmerling
 Engine-starting device, Explosive. M. MacFarland
 Engine-starting device, Explosive. H. S. Rauch
 Engines, Jump-spark ignition apparatus for internal-combustion. M. B. Crist
 Engines or the like, Distributing apparatus for. E. M. Ballot
 Evaporative cooler. T. A. Henderson
 Evener. R. H. Keith et al.
 Exhibit device. I. Nutry
 Expansion joint. S. T. Morse et al.
 Explosion motor. M. B. Crist
 Explosion motor. A. T. Kasley
 Explosive engine. J. M. Morgan
 Fan, Centrifugal suction. J. Meier
 Feed regulator. C. D. Scott
 Feeding material, Means for. W. H. O'Connor
 Fence machine, Picket. J. S. Purdy
 Fender. G. L. Hinderer
 Fibers from other materials, Apparatus for separating. P. H. Minck et al.
 Filament mounting. E. S. Gardner
 Filaments, Manufacture of electric. C. F. A. von Weisbach
 Filing cabinets, Sides unit for metal. A. H. Schaffert
 Filing device. R. D. Struhle
 Film-developing and drying support. A. C. Fisher
 Fire hydrant. E. L. Delany
 Firearm, Automatic. C. H. Barnes
 Firearm, Repeating. J. H. Wheeler
 Firearms, Breech action for. A. Muller-Deutschmann et al.
 Flagging device. R. C. Keene
 Flexible coupling. F. N. Nutt
 Flue cutter. F. Dix
 Fluid-controlling mechanism for cylinders. A. N. Metzelaar
 Fluid-pressure device. G. Westinghouse
 Fly-paper holder. B. Yokoyama
 Fly trap. E. E. Cullen
 Fly trap. C. W. Von Dorn
 Flying machine. C. T. Jones
 Foldable box. J. Nemeth
 Folder and return envelope, Combined. M. P. Levine
 Food, Stock. W. T. Eldridge
 Footwear. C. Streb
 Footwear. C. Remer
 Forceps, Pig. W. B. Armstrong et al.
 Forming-in machine. J. N. Moulton
 Fracture box. N. Swanson
 Friction transmission mechanism. T. D. Stanley
 Fruit picker. J. E. Allsteadt
 Fuel apparatus. J. Hyde
 Fuel mixer, Gaseous. H. E. Whiting
 Furnace. W. Gartner
 Furnace casing. C. A. Kennedy
 Furnace grate. J. Peck
 Fuse, Delay action. P. D. Van Essen
 Gage. J. W. Williams
 Garment hanger. M. E. Thomas
 Garment supporter. A. H. Fleming
 Gas analysis apparatus. E. J. Billings
 Gas light, Inverted incandescent (2 pats.). V. H. Slinack
 Gas-manufacturing apparatus. E. C. and L. B. Jones
 Gas meter. H. Chrisman
 Gas meter. H. H. Sprague
 Generator and burner, Combined. S. A. Christian
 Gin-saw-space-block-sizing machine. H. W. Ligon
 Glass and means for preventing the streaking of glassware, Regulating device for molten. J. W. Gayner
 Glass, Grinding machine for manufacturing plate. H. S. Heichert
 Globe or shade and holder therefor. D. A. Ripley
 Glue dissolver. M. Nystrom
 Gluer and driver, Automatic double. R. C. Brown
 Glycerine, Decolorizing. F. Lindner
 Golf club. T. Taylor, Jr.
 Golf-club head. W. Burke
 Grate. R. M. and C. C. Sprague
 Grinding apparatus. J. A. Bechtel
 Grinding disk for coffee mills and the like. H. L. Johnston
 Grinding-machine-truing device. C. W. Beam
 Grinding machines, Applying abrasives to. H. K. Hitchcock
 Grinding mechanism, Applying abrading material to. J. A. Bechtel
 Grinding wheel. F. B. Jacobs
 Gun carriages, Detachable spade for wheeled. O. Lauber
 Gun-loading device, Turret or stationary. M. Bartholdy
 Gun, Quick-firing machine. T. F. Caldwell
 Hair fastener, Spring clasp. A. S. Fridolph
 Hammock. A. A. Schimmel
 Handle and fastener therefor. A. L. Adams
 Harness. N. C. Weimer
 Harness clasp. T. J. Daniel
 Hat-pin guard. E. C. Pieasants
 Hat-pin guard. W. H. Nutter
 Hat-pin-point-protecting device. J. Przybytko
 Hats, Telescoping device for. F. J. O'Hare et al.
 Head motion. F. Franz
 Headlight, Locomotive acetylene gas. W. R. Thurston
 Headlight mounting, Automobile. W. E. Nickerson
 Heat energy, Utilizing. W. H. Smyth
 Heating apparatus. E. J. Smith
 Heating system. C. A. Stjernquist
 Heating system, Hot-water. J. P. Barker
 Hedge trimmer. J. P. Meyer
 Heel extension and protecting device. C. H. Brown
 Hinge. A. Hovorka
 Hinge, Vehicle top-bow. C. L. Bair
 Hollow articles, Machine for applying linings to. E. D. Anderson
 Horn, Automatic. G. F. Long
 Horseshoe. J. H. Kieffer
 Horseshoe attachment. J. H. Roebuck
 Horseshoe calk. C. J. Richard
 Horseshoe calk. F. F. Heiselmann
 Horseshoes, Hoof-rectifying attachment for. F. A. Dresser
 Hose coupling. J. R. Kile
 Ice tongs, Single-jointed. H. W. Ely
 Illuminating appliance. V. Lansingh
 Index. C. H. Wiley
 Indexing device. B. S. Loveland
 Ingot-making apparatus (2 pats.). L. E. Howard
 Ingots, Making (2 pats.). L. E. Howard
 Inseam-trimming machine. E. C. Coly
 Insole-making machine. A. E. Johnson
 Internal-combustion engine. O. Ohlsson
 Internally-fired engine. W. H. Smyth
 Iron and steel, Process and high-pressure furnace for the direct production of. C. Otto
 Iron, Working pure. R. B. Carnahan, Jr.
 Ironing board. R. Jones
 Journal box. I. A. Randel
 Journal boxes, Making. I. A. Randel
 Kinetographic films, Plastic material used in the manufacture of. H. Danzer
 Knitting machine. W. F. Rolston
 Ladder, Extension. E. Weil et al.
 Ladder, Extension. H. and S. M. Pisarz
 Lamp. W. F. Ankland
 Lamp, Electric. H. A. Douglas
 Lamp, Gas. F. V. Risinger
 Lamp-ignition device. L. M. Dull
 Lamp, Miner's. P. Gullman
 Lamp, Petroleum incandescent. O. Gottke
 Lamp, Reflecting electric. H. A. Douglas
 Lantern. F. Dietz
 Lantern, Automatic projecting. J. Quigley
 Latch for elevator doors. B. Wexler
 Latches, Auxiliary spring for. A. A. Page
 Level. T. H. McNutt
 Lever. A. L. Wyman
 Life-saving apparatus for aviators. G. R. Signaigo
 Life-saving buoy. J. B. Adams
 Light shield. T. P. Driver
 Lighters, Fastener for pocket. J. M. N. Manent
 Line-spacing mechanism. H. A. Footthorpe
 Liquid mixer. J. J. Wood
 Liquids with ozone, System for treating. M. Fuss
 Load brake. E. H. Dew on
 Lock. W. E. Sparks
 Lock. J. H. Shaw
 Lock. A. S. Hill
 Locomotive-fire-box construction. L. Parish
 Loom. A. E. Rhoades
 Looms, Protecting device for the tubes of pile fabric. A. Clapperton
 Lubricant nebulizer. B. F. Howard
 Magnesium chloride, Production of. J. C. Graves et al.
 Magnetic separator. G. Ulrich
 Manifold heater. F. A. Vallbrecht
 Map. E. S. Batterson
 Match-ignition composition. H. W. Charlton
 Match-splint carrier. F. Schafer
 Matrix-setting and line-casting machine. H. Degener
 Measuring instrument. P. C. Schmid
 Measuring machine. A. F. Nims
 Mechanical movement. G. V. J. Guilbert
 Medical appliance. G. Wolf
 Metals, Uniting. J. C. Russell
 Metallic leaf in rolls, Machine for packaging. C. E. Smith
 Metals, Working refractory. M. von Pirari
 Microphone repeater, Differential. J. J. Comer
 Mileage-indicating apparatus. S. M. Cutter et al.
 Milk cooler. P. E. Cranston
 Milk pan, Self-skimming. H. C. Harris
 Milking device. W. Labbe
 Milking-machine teat cap. J. L. Halbert
 Milking, Mechanically. J. L. Halbert
 Milling-machine head. S. S. Bolton
 Miter box. C. C. Gladwin
 Mop holder. M. F. Claiborne
 Mop holder and wringer, Combined. H. O. Johnson et al.
 Motion converter. G. Kovalevich
 Motor drive, Electric. K. A. Pauly
 Motors, Air-supply means for. W. A. Watkins
 Mouthpiece. C. E. Stary
 Mower, Lawn. G. P. Helrich
 Musical instruments, Spool-operating device for. A. Nordeen et al.
 Nail-pulling nippers, Farrier's. P. Broadbooks
 Nest. E. Swanson
 Newspaper rack, Portable. A. E. MacKinnon
 Numbering machine. W. W. Sawyer et al.
 Nut, Lock. W. D. Crandall
 Nut, Lock. C. W. Nea
 Nut lock. O. Vincent
 Nut-tapping machine. J. A. Johnston
 Oil burner. C. N. Moore
 Oil burner. F. K. Martin
 Oil duster and polisher. G. M. Urie
 Oil heater. W. R. Jeavons
 Oiler, Pocket. R. L. Ross
 Oiling multiple-die stock, Automatic. H. J. Suelzen
 Ore-dressing apparatus. H. Veltin
 Oven-lighting device. A. Susslin
 Oven, Regenerative. W. Mueller
 Ovens, Coal-leveling machine for beehive. W. Sangster
 Overshoe fastening. R. B. Stroup
 Overshoe jack and scraper, Combined. J. Streeton
 Package. F. J. Weston
 Package tie. C. A. Patrick
 Packing, Piston-rod. H. W. Ramberg
 Packing receptacle. H. Knechenmeister et al.
 Padlock. J. Sukup
 Pail, Self-heating dinner. J. A. and L. Hildux
 Pailut. T. Mott
 Paint-spreading or forming machine. J. W. Hasburg
 Paper-box-making machine. E. D. Anderson
 Paper-creasing machine. A. C. Downing
 Paste goods, Apparatus for drying. O. Muller
 Paving material. J. S. E. Pardee
 Pen cleaner and holder. W. T. Tyler
 Pencil holder. D. L. Long
 Pencil sharpener. O. W. Niedomanski
 Phonograph record. P. H. Gregory
 Phosphorus pentoxide, Hydrating. S. Peacock
 Photographic-printing frame. H. G. Wolf
 Photographic shutter. J. Goddard
 Photography, Producing polychromatic screens, plates, films, and paper for color. J. Szczepanik
 Photography, Sensitizing dyestuffs employed in. J. H. Smith
 Piano bridge. L. H. Breitenbach
 Piano player and like instrument, Mechanical. W. H. Grimsdale
 Pianos, Motor for automatic. M. Clark
 Picture machine, Moving. F. H. Frude
 Picture-projecting machine, Portable motion. W. J. Branigan
 Picture reproduction and mechanism for producing the same, Curved screen for stationary and moving. W. L. Tillotson
 Piles and caissons, Nozzle for. E. Bignell
 Pins with head plates, Appliance for providing metallic. H. J. Edel
 Pipe, cigar holder, or the like. H. H. Dyer
 Pipe-cleaning devices into pipe lines, Apparatus for inserting. B. B. Hodgman et al.
 Pipe-cleaning means, Water. R. P. Hill
 Pipe coupling. P. J. Madden
 Pipe joint, Expansion. W. H. Renn
 Piston for internal-combustion engines. C. Day et al.
 Planing machine, Electrically-driven. G. E. Mason
 Planter. J. D. Maddux
 Planter attachment, Corn. J. B. Allbee
 Planter, Corn. J. H. Boehme et al.
 Planter, Corn. H. Schlicht
 Player action, Pneumatic. E. C. Hiseock
 Plow attachment. G. Grimes
 Plow fender. Z. T. Cash
 Plug, Safety. A. C. Sanger
 Plumb bob. F. Birchbauer
 Plumber's furnace. A. J. Archambault
 Plumbing fixture. I. A. Mann
 Polishing machine. C. W. Peam
 Post anchor. W. Johnson
 Post or pole. J. M. Pooth
 Potter's tool. P. J. Madden
 Power machine, Self-propelled. A. S. Clemens
 Power transmission, Portable. A. Lee
 Pressure governor, Centrifugal. L. C. Loewenstein
 Pretzel-making machine. G. H. Schaezel
 Printing machine, Cylinder. H. M. Barber
 Printing prepaid postage on postal packages, Device for. J. Leiche
 Printing press, Rotary. H. F. Boehman
 Printing presses, Web-treating device for. H. A. W. Wood
 Projectile, Luminous. F. Ziegenfuss
 Projectiles, Cap for armor-piercing. R. A. Hadfield
 Propeller, Boat. J. S. Blatzer et al.
 Propelling a body through the water, Device for manually. C. H. Wyche
 Pulley safety device. W. Schoepke
 Pump. H. G. Moss et al.
 Pump, Centrifugal. C. V. Kerr
 Pump, Centrifugal. W. Kieser
 Pump, Centrifugal air. G. Pazel
 Pump cylinder. L. G. Eddy
 Pump for motor vehicles. A. Loomis

(Continued in July Number)

The Most Valuable Techno-Chemical Receipt Book Published

Henley's Twentieth Century Book of RECIPES FORMULAS AND PROCESSES



Edited by GARDNER D. HISCOX, M. E.

Price, \$3.00 Cloth Binding \$4.00 Half Morocco Binding
800 large Octavo (6 x 9½) Pages.

Contains over 10,000 Selected Scientific, Chemical, Technological,
and Practical Recipes and Processes, Including Hundreds of
so-called Trade Secrets for every business.

To present here even a limited number of the subjects which find a place in this valuable work would be difficult. Suffice to say that in its pages will be found matter of intense interest and immeasurable practical value to the scientific amateur and to him who wishes to obtain a knowledge of the many processes used in the arts, trades and manufactures, a knowledge which will render his pursuits more instructive and remunerative. Serving as a reference book to the small and large manufacturer and supplying intelligent seekers with the information necessary to conduct a process, the work will be found of inestimable worth to the Metallurgist, the Photographer, the Perfumer, the Painter, the Manufacturer of Glues, Pastes, Cements, and Mucilages, the Compounder of Alloys, the Cook, the Physician, the Druggist, the Electrician, the Brewer, the Engineer, the Foundryman, the Machinist, the Potter, the Tanner, the Confectioner, the Chiropodist, the Manicure, the Manufacturer of Chemical Novelties and Toilet Preparations, the Dyer, the Electroplater, the Enameler, the Engraver, the Provisioner, the Glass Worker, the Goldbeater, the Watchmaker and Jeweler, the Hat Maker, the Ink Manufacturer, the Optician, the Farmer, the Dairyman, the Paper Maker, the Wood and Metal Worker, the Chandler and Soap Maker, the Veterinary Surgeon, and the Technologist in general.

Among the Recipes given are:

Bleaching, Etching and Engraving
Recipes for Glass Making, Paper Making
Recipes for Ointments
Mirror-Making Formulas
Paint Making Formulas
Gilding and Galvanizing Recipes
Bronzing, Tinning and Silvering Recipes
Recipes for Adhesives
Plating and Enameling Recipes
Cleaning Processes, Soap Making
Leather and its Preparation
Recipes for Alloys, Recipes for Solders
Photographic Formulas
Shoe Dressing and Stove Blacking Recipes
Rust Preventive Recipes

Recipes for Lubricants and Oils
Recipes for Dyes, Colors, and Pigments
Recipes for Dryers and Inks
Recipes for Artificial Gem Making
Jewelers' and Watchmakers' Recipes
Household Formulas
Waterproofing, and Fireproofing Recipes
Recipes for Cements, Glues, Mucilages
Recipes for Fireworks
Alcohol and its uses
Recipes for Essences and Extracts
Dentifrice, Cosmetic, and Perfume Recipes
Tanning Recipes
Metallurgical Formulas
Hair Restorers, and Depilatories

And many thousands more—Equally Important in the Arts and Manufactures

Address: THE INVENTIVE AGE Publishing Co., Washington, D. C.

A GREAT BARGAIN \$1.75 Value for \$1.00

One Year's Subscription for McCall's
Magazine, Any 15-Cent McCall
Pattern you may select, One
Year's Subscription for
The Inventive Age.

ALL FOR ONLY

\$1.00



McCall's Magazine

Is a large, artistic, handsomely illustrated hundred-page monthly magazine. It contains sixty new Fashion Designs in each issue. Every woman needs it for its up-to-date fashions, entertaining stories and complete information on all home and personal topics. Over one million subscribers. Acknowledged the best Home and Fashion Magazine. Regular price, 5 cents a copy. Worth double.

McCall Patterns

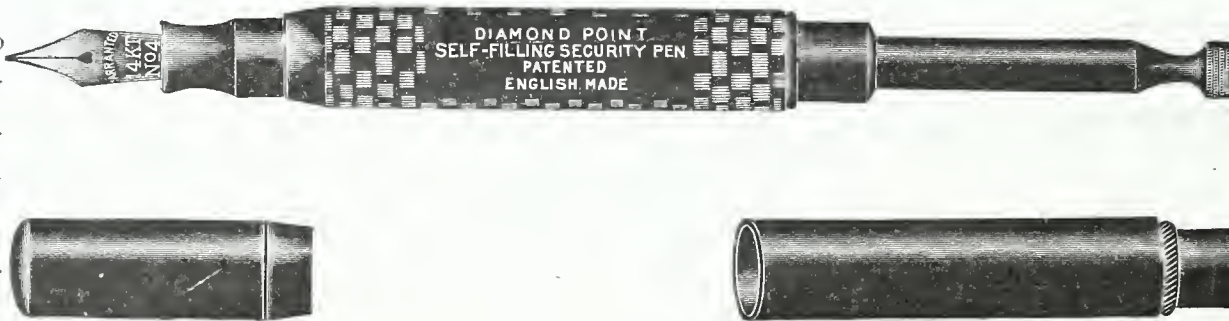
Are so simple you cannot misunderstand them. Absolutely accurate. In style, irreproachable. You may select, free, any McCall Pattern you desire from the first number of the magazine which reaches you. Regular price, 15 cents.

The Inventive Age.

A journal of manufacturing industry and scientific progress. The indispensable paper for patentees. Contains matter and information not found elsewhere. Regular price, \$1.00 per year.

The DIAMOND SELF-FILLING AND SELF-CLEANING Fountain Pen.

IT IS AWAY AHEAD
OF ANY OTHER PEN
MANUFACTURED BE-
CAUSE OF ITS SELF-
FILLING AND SELF-
CLEANING FEATURES.



No Soiled Fingers.

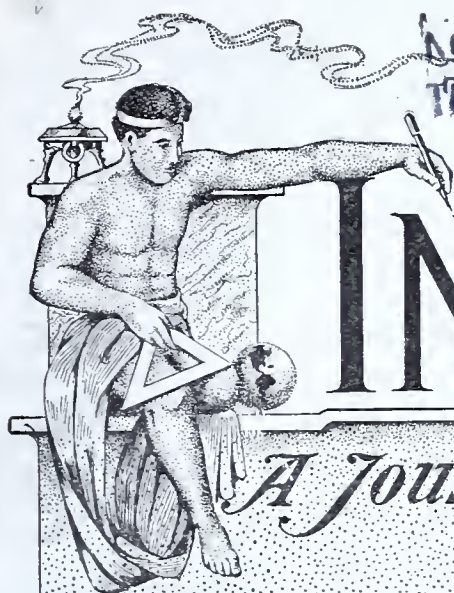
No Lost Time.

Price \$2.00.

Including one year's
subscription to "The
Inventive Age."

Address--- INVENTIVE AGE PUB'L. COMPANY, WASHINGTON, D. C.

SEND FOR OUR FREE CATALOGUE OF BOOKS FOR
INVENTORS AND MECHANICS.



The INVENTIVE AGE

*A Journal of Manufacturing Industry and
Scientific Progress.*



VOL. XXVI. No. 7. }

WASHINGTON, D. C.--JULY, 1914.

Single Copies 10 CENTS.
ONE DOLLAR A YEAR.

RADIATION PYROMETER INDICATOR AND RECORDER.

By FRANK C. PERKINS.

THE accompanying illustration, Fig. 1, shows the convenience of using a portable radiation pyrometer for measuring the temperature of an open-hearth furnace, while photograph Fig. 2 shows a ventilated type of receiving tube for recorders, as utilized in connection with another form of

furnace. This radiation pyrometer has been designed by Charles Burton Thwing, Phd., and is shown in detail in Fig. 4. It is intended as an accurate means of measuring the high temperatures used in ceramic and metallurgical operations. It is simple, portable and can be read directly, mak-

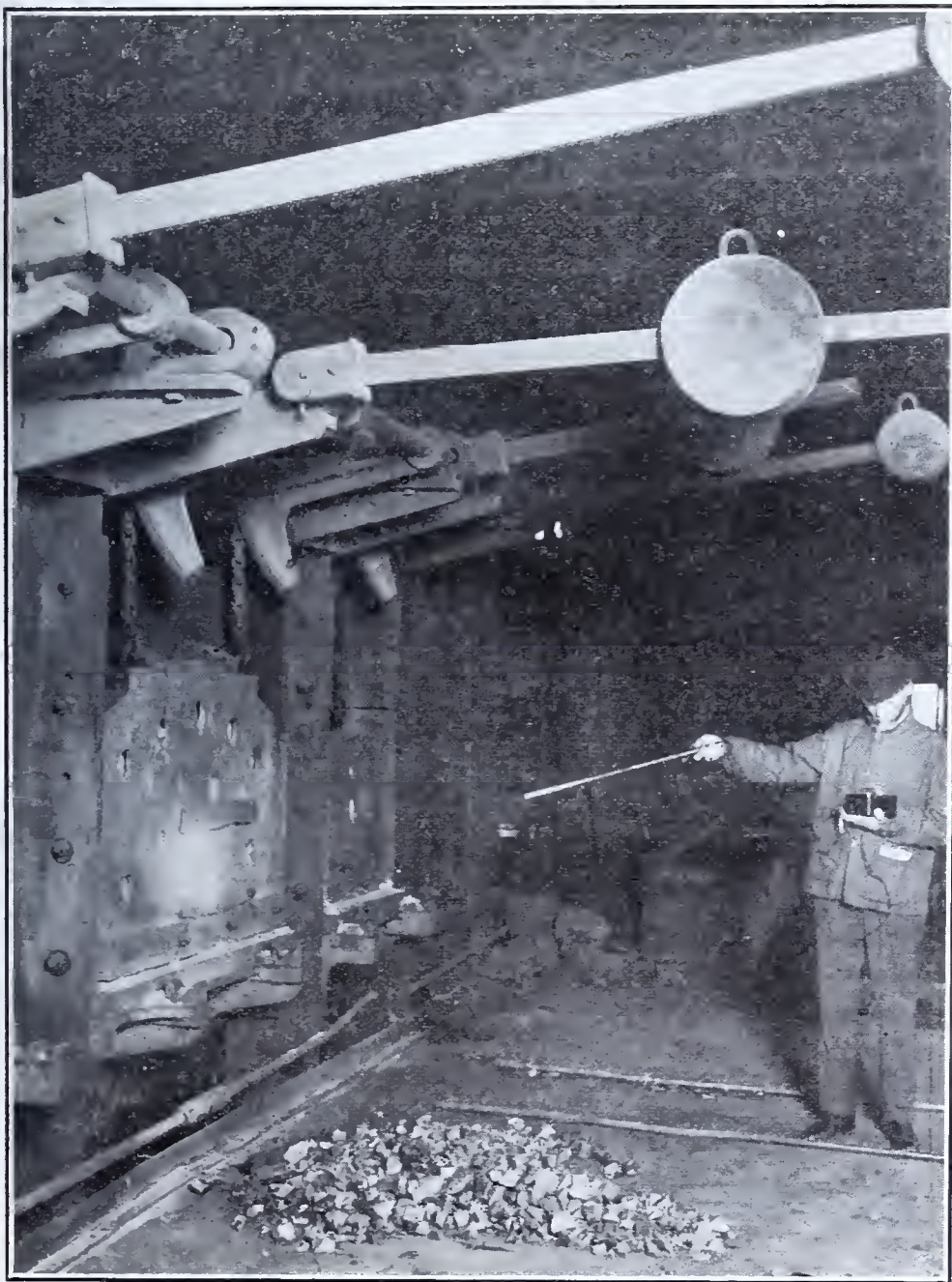


FIG. 1.—PORTABLE RADIATION PYROMETER FOR MEASURING TEMPERATURE OF AN OPEN HEARTH FURNACE.



FIG. 2.—VENTILATED TYPE OF RECEIVING TUBE FOR RECORDERS.

ing possible the quick and accurate determination of high temperatures by ordinary workmen. The principle employed is the measurement of the total energy of radiation by means of the current generated in a sensitive thermo couple by the radiation con-

centrated upon it. The principle has already been employed by Fery in his pyrometric telescope. The novel features of the pyrometer consist both in the means employed for concentrating the radiation and in the design of the galvanometer used for measuring

the current generated in the thermo-couple.

The Stefan-Boltzmann law may be stated as follows: The energy radiated by a black body is proportional to the fourth power of the absolute temperature. The validity of this law is unquestioned. The conditions furnished by a black body are closely realized by such substances as clay and porcelain and by iron and other metals in the solid state, as well as by any body whatever which is contained in an enclosure having a small opening only. The departure of molten iron and copper from the conditions of a "black body" will be referred to toward the close of this article.

It is pointed out that it is highly desirable for rapid work that the receiving tube of the pyrometer should be so designed as to be independent of the distance of the hot body from the tube, so as to avoid the loss of time required for focusing, and to eliminate the possible error due to inaccurate focusing. This end has been attained in the pyrometer under consideration by the use of a conical mirror for concentrating the radiation.

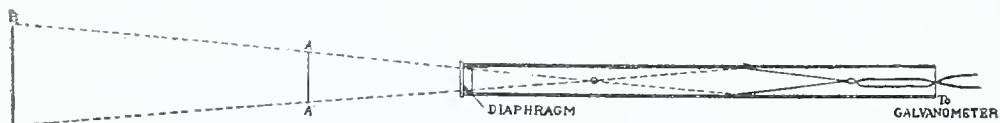


FIG. 3.—DIAGRAM SHOWING WHY READINGS ARE INDEPENDENT OF DISTANCE

It is evident from a consideration of drawing Fig. 3, that, since the containing tube is black, no radiations reach the conical mirror from any part of the observed surface outside the solid angle AOA^1 and all radiations from the surface falling within this angle are transmitted by multiple reflection to the thermo-couple at the small end of the cone.

In practice the indications are found to be independent of distance, the one condition being of course fulfilled, that the surface is of sufficient area to fill the solid angle. In the portable form of pyrometer the receiving tube is about 30 inches long. In the stationary type the tube is made shorter and is shielded from the disturbing effect of local temperature variations by a jacket containing water or oil.

In most cases it is found desirable to point at the inner wall of a tube of fireclay or iron, which projects into the furnace far enough to take the temperature of the surrounding gases without permitting the ingress of cold air to the furnace. Suitable leads conduct the current generated by the radiation from the thermo couple to the indicating or recording galvanometer.

It is maintained that it is important that the galvanometer used with the portable receiving tube should be of a form which does not require leveling, and at the same time, sufficiently sensitive to respond to the small current generated in the thermo-couple by a difference of temperature never exceeding 100 degrees Centigrade.

As ordinarily constructed for thermoelectric measurements, the D'Arsonval galvanometer must have included in circuit with the moving coil, (to diminish the error due to changes in the temperature of the air,) a large dead resistance of negligible tempera-

ture co-efficient. This added resistance greatly reduces the sensitiveness of the instrument.

It is claimed that the device adopted for overcoming this error effects a complete compensation without in the least diminishing the sensibility, and thus permits the use of a pivoted coil which does not necessitate leveling the instrument. Incidentally the new design employs very light magnets, so that the complete instrument weighs but four pounds.

It is pointed out that the principle made use of in effecting the compensation is as follows: The deflection of a coil carrying a current in a field of magnetic force is proportional to the current traversing the coil and to the magnetic flux through the air gap of the magnet. The magnetic flux is, for a small air gap, inversely proportional to the length of the air gap, since the flux is proportional to the reciprocal of the reluctance and the latter, owing to the low reluctance of steel, is almost in the air gap. The coil rotates about one of its ends in a uniform field between two pole pieces.

The two magnets that are connected in parallel by these pole pieces differ from those ordinarily employed in being very thin and therefore quite flexible. These magnets are pressed together somewhat by the long end of strong lever, the short end of which rests upon a post which is part of the aluminum case. Near the bearing of the lever on the post and at the proper distance from it the lever is pierced by a light rod of metal, which serves to apply pressure to the magnets.

If the temperature of the air rises the aluminum post will expand much more than the rod, thus forcing the long end of the lever downward and diminishing the gap between the poles of the magnet to an extent which may be made accurately to compensate for the corresponding increase of electrical resistance in the coil. In practice the device is found to accomplish its purpose with remarkable accuracy, and thus to solve one of the most serious difficulties in the way of making an accurate and at the same time sensitive portable galvanometer.

The portable pyrometer noted in Fig. 1 responds instantly to temperature changes, attaining a state of equilibrium in five seconds after pointing at the hot surface and returning as quickly to null reading when the radiations are cut off.

It is stated that the possible range of temperatures is unlimited in either direction. It has been adapted to the measurement of the temperature of mangle rolls in a laundry where the maximum temperature is only 200 degrees Centigrade.

It is of interest to note that the cement industry has recently become interested in an accurate knowledge of the temperatures at which the kilns are operated, and the radiation pyrometer has solved the problem of how

to measure these temperatures. The popular instrument in this industry appears to be one designed to measure not only the interior temperatures but the loss by radiation of the kiln walls.

In brick and pottery kilns, glass furnaces, chemical plants, gas plants, and many special industries, the value of the radiation pyrometer has been clearly shown.

There are many commercial operations where it is not only desirable to learn the temperature, but to secure a record of the temperature at all stages. For such work, in the higher ranges

user. By means of this feature, which is fully covered by letters-patent, the galvanometer is automatically switched from one thermo-couple to another, and thereby several records are secured upon the same chart. These records are easily distinguishable, due to the employment of a different length of mark for each record. As many as three records can easily be made by one galvanometer. Another feature which is frequently of great advantage is the mounting of several galvanometers of special design, which take up but very small space. The ad-

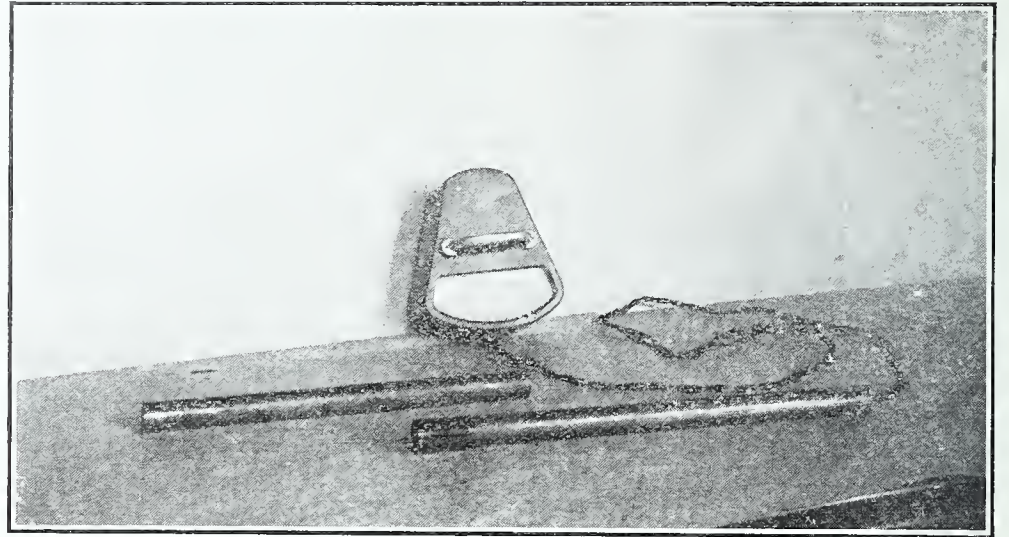


FIG. 4.—THE RADIATION PYROMETER OF THE THWING PORTABLE TYPE.

of temperature, there is no more accurate method than the recording radiation pyrometer. The basic principle of the instrument, of course, is that employed in the portable instrument, but since the receiving tube is to be continuously exposed to heat, it is necessary to provide a modified form of tube, as shown in illustration Fig. 2, which will prevent the accumulated heat of the tube from disturbing the thermo couple. The same type of tube is employed when it is desired to have continuous indications of temperature, as in treating high speed steel in a barium-chloride bath, or in an oil or gas furnace.

It may be stated that in the cement industry there are used two combination recorders, one galvanometer recording the temperature of the kiln by means of a radiation receiving tube and the other galvanometer recording the temperature of the stack by means of a thermo couple. This furnishes a complete system of regulating the firing of a rotary kiln, and invariably produces a more uniform burn.

The recording mechanism is extremely simple. The galvanometer needle is periodically depressed upon the chart which is carried forward by means of clockwork. At each depression an ink mark is made upon the chart at a point corresponding to the temperature and to the time. At frequent periods the galvanometer is automatically disconnected from its thermo-couple, and allowed to return to zero, at which point the needle is depressed upon an ink pad and is then ready for making another record.

It is pointed out that the multiple contact feature results in a great saving in first cost as well as in space, and is of great convenience to the

advantages of the device are readily apparent to any user of a large number of recording pyrometers, as the number of charts to be handled is considerably reduced.

Surgery Under Fire.

A few weeks ago, says *Pearson's*, a workman engaged on the top of the roof of a tall building at Springfield, Mass., dislocated his shoulder.

It was impossible to bring him down, so a surgeon climbed up, and, coolly sitting astride a girder, hundreds of feet above the crowded street, proceeded to chloroform the injured man and reduce the dislocation.

To the man in the street the skill of the surgeon is always something of a miracle. To carve living flesh with steady hand and sure eye, to secure each streaming vein, to remove diseased organs, and then to mend up the wound so perfectly that hardly a scar remains, seems to him to require almost super-human skill.

And there is no doubt but that a big operation calls for the very highest qualities that man possesses. Even in the perfectly lit and perfectly appointed operating theaters of a great hospital, with every possible aid at hand that modern science commands, the task is a severe one.

Yet often and often the surgeon is called upon to perform operations without any such aids, and then the ordeal may be almost as severe for doctor as it is for patient—for instance, in a railway accident.

One raw winter morning, two years ago, a passenger alighting in a hurry from a train, slipped and fell between the still moving train and the platform.

A doctor summoned in haste, found that the only possible method of extri-

cating the unfortunate man was to amputate one of the legs.

Instruments were fetched, and as it was not yet daylight, a ring of porters stood round with station lanterns, while other persons struck matches to assist the surgeon.

What made the horrible business more terrible was the fact that it was impossible to give the injured man chloroform. He remained conscious all through the operation.

In spite of the cramped position in which the surgeon was compelled to work, and the lack of light and appliances, the operation was quickly and successfully finished, and the sufferer removed to a hospital.

Often in war time surgeons have had to operate on the battlefield, sometimes actually under fire. But it was under fire of a different sort that two American doctors performed an operation at the hospital at Biddeford, Maine.

The operation was to remove an internal ulcer; but five minutes after they had begun it was discovered that the hospital was afire.

To move the patient was to kill her. The surgeons stuck to their work. The roar of flames was plainly heard, and the hiss of the water from the fire hose. Presently water began to pour through the roof and pieces of wet plaster to fall thudding to the floor. The nurses put up umbrellas and held them over the patient and the doctors. No one dreamed of moving until all was finished and the wound sewn up. Then the patient was removed to a place of safety.

In 1911, a similar case occurred at the West London Hospital, but here the fire broke out just before the operation was begun, so there was time to remove the man to another department.

A Novel Locomotive Head Light.

A head light which will automatically maintain the proper relation to the center of the track when the locomotive is rounding curves has been patented by Charles H. Walter, of Connellsville, Pa. In carrying out the invention, the patentee provides within the head light casing a gravity device which acts as the locomotive tips in rounding curves, and to an extent commensurate with the degree of curvature, so as to maintain the beam of light emitted by the head light on the center of the track, instead of being more or less tangent to the curved track, as occurs with head lights fixed to the locomotives. The invention has been given a severe test on the Boswell branch of the Baltimore and Ohio Railroad, the tests being conducted under the most rigid requirements, and the railroad officials declared that the trials were entirely satisfactory. It will reduce to a very great extent the dangers to which the employees and the passengers as well, are frequently subjected at night.

Box Making and Filling Machine.

The latest marvel of mechanical ingenuity is a machine that not only fills a bag, but folds the top of it, makes a pasteboard box, places the bag and a printed circular in the box, seals the box and drops it into a basket. Fifteen thousand boxes can be so filled in a day of ten hours. The most expert pair of human hands could not complete more than 200 boxes in the same time.

THE PRESENT POLICY OF THE PATENT OFFICE.

[Reprinted from the Bulletin of the United States Trade Mark Association.]

The past few months have seen the introduction into the United States Patent Office of certain new policies with reference to the registration of trade-marks that will prove of great importance to applicants. The departures from the long recognized attitude of the Office, in matters of this kind, are all in the direction of what may be termed a broader and more liberal policy toward applicants for trade-mark registration.

Under date of November 29, 1912, this association presented to the President's commission on economy and efficiency, at its request, certain suggestions relative to the revision of practice in the Patent Office with respect to trade-marks, and at the time of the appointment of Commissioner Ewing and Assistant Commissioner Frazier, copies of this report were forwarded to them. The decisions of these officials during the three months that they have been in office, have already removed several of the subjects of criticism referred to in that report.

In the first place the policy of the Office is marked by an entire change of attitude toward the applicant for registration of trade-mark. It is fair to say that formerly the Office approached the application for registration with the idea of determining not how the mark could be registered, but whether upon any grounds it might be rejected. The Commissioner has already clearly shown that his purpose is not to reject applications, but to allow them, and to resolve any doubt in the applicant's favor. It was formerly the practice of the Office to reject an application with which specimens were filed showing the use of the word "cure" as applied to medicinal preparations, the ground being that these words constituted a misbranding under the pure food and drug law. The Patent Office adhered to this position, even after the United States Supreme Court had held the contrary, and continued to reject applications for registration on the old ground.

A decision of Assistant Commissioner Frazier, following the decision of the United States Supreme Court, and reversing the policy of the Office in this respect, has already been mentioned in the Bulletin.

In the report above referred to, we expressed the belief that the views of the interested parties, whose rights in the same or similar trade-marks are claimed to conflict, should be given a controlling influence in determining a doubtful case, when it is evident that the parties are acting neither fraudulently nor collusively. It has frequently happened that although the parties concerned disclaim any interest in the alleged interference, the Patent Office, with a view to protecting the public against confusion, insists upon adjudicating the question of conflict between the marks. We have already referred to one decision of Com-

missioner Ewing, announcing the present policy of the Office in that particular.

In another proceeding for the cancellation of a trade-mark, the parties stipulated that the marks did not conflict, and the petitioner for cancellation stated that he had no objection to the use of the mark by the registrant. Nevertheless, the examiner refused to allow the proceeding to be dropped without a judgment. The Commissioner, however, upon appeal overruled the examiner, saying that the parties should not be forced into a controversy against their will, the question of conflict between the two marks not being altogether clear.

In the registration of proper names, geographical or descriptive terms, a similar tolerance has been evidenced in the decisions of the present commissioner. Upon an application to register the name of the applicant printed in a curve above part of a design, and conforming to the curvature thereof, the mark having been previously registered and used for a number of years, the commissioner holds that the name is displayed in a distinctive manner.

The name "Seco" formed from the initials of the corporate name, the commissioner held should be registered, notwithstanding it was a surname. The applicant, he said, takes its own risk in registering a name that any one of that name may use, but in view of the rarity of the name as a proper name, there is no danger that the rights of the public would be prejudiced.

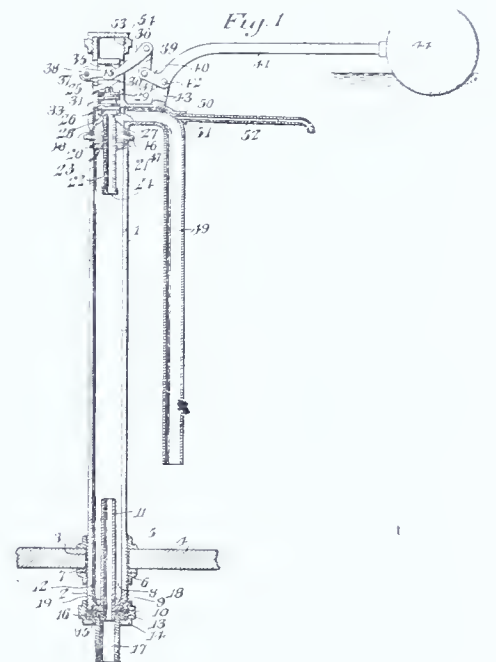
Although the principle has been laid down by the Patent Office and approved by the Court of Appeals of the District of Columbia, that a registrable mark can not be made by the combination of unregistrable elements the present commissioner has not hesitated to disregard this principle in the case of an application to register the mark "Rick-Quick" for faucets, notwithstanding the name "Rick" is a surname and the word "Quick" descriptive of the action of the faucets. The Commissioner says that while the two elements of the combination are familiar, the combination itself is novel and distinctive and is a good trade mark.

In holding that the applicant might amend his drawing to include in his application any feature of the mark already shown in the specimens, the Commissioner showed a purpose to retreat from the position of the Office in the past, which has avoided the allowance of any amendment, the need whereof might be made the occasion for requiring the filing of another application and the payment of a new fee. Heretofore the perhaps pardonable pride of the Commissioner of Patents in the large balance to the credit of the Office in the United States Treasury, has apparently been responsible for a somewhat too great thrift in compelling the filing of new applications and the payment of additional fees.

On the whole, a gratifying change in the treatment of trade-mark applications, and in the handling of trade-mark rights, is evidenced in these and other late decisions of the Patent Office. Trade-mark owners may well feel that, at the hands of the present Commissioner, the value of their interests and the commercial importance of protecting them will have the fullest appreciation.

Ball Cock for Flush Tanks.

This invention, which was devised by Edward A. Gehrke, of Lincoln, Nebr., presents several novel features over existing devices. It has a main vertical tube 1 which is secured to the bottom of the flush tank by the collar 5 and nut 6. Within the tube 1 is placed an interiorly arranged tube 11 of considerably smaller diameter than the tube 1, and extending upwardly into the same in spaced relation therewith to provide an intervening annular space forming a catch basin 12 for holding sand, gravel and other accumulation entering the device. This tube 11 is detachably retained within the lower portion of the tube 1 by means of a union 14, which connects with a short tube or nipple 17.



When it is desired to clean the catch basin, the water is turned off, the union 14 unscrewed from the lower end of the vertical tube 1, and the interiorly arranged tube 11 is removed therefrom, and with it the accumulation contained within the catch basin.

The upper end of the vertical tube 1 is threaded to receive a screw plug 20 which is provided with a threaded opening to receive an adjustable interiorly arranged tube 22. This tube is provided at its lower end with a strainer 24 of wire gauze or other suitable material. The upper end of the tube 22 extends above the plug 20 and constitutes a seat for a vertically movable valve, which is actuated by the rise and fall of the float through the lever 41, link 39, and lever 36, the latter being mounted in a transverse slot of the upper section of the valve. The valve casing is provided with an expanded upper portion 43 closed by a safety cap 54.

It will be noted that the tube 11, forming the catch basin may be removed without removing the valve from the flush tank, and that the said tube is accessible exteriorly of the tank. This is a very desirable feature.

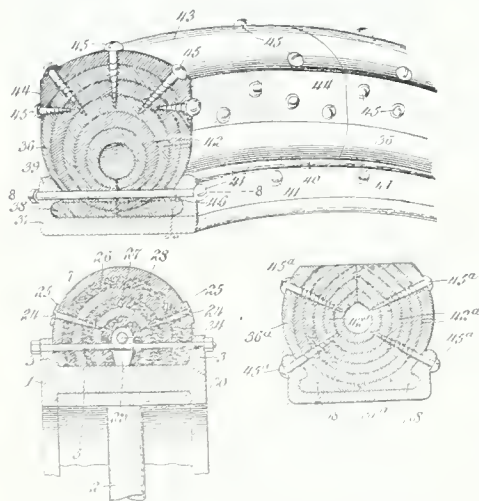
CLEVER NEW PATENTS.

Vehicle Tire.—Sucker Rod Coupling.—A Novel Hat Pin.

Vehicle Tire.

The life of the outer casing of a pneumatic tire is quite limited, and oftentimes tire casings are rendered useless by accident or wear affecting but a portion of the tire casing, while the remaining portions are serviceable; though because repairs are so costly the entire casing is discarded. Unless some provision is made for their use, these discarded outer casings possess no value except for the rubber contained therein.

Mr. George Kelly, a well known inventor of Hinsdale, Ill., who has spent the major portion of his life in devising many inventions for the recovery or use of waste products, has devoted his attention to solving the problem of making use of the discarded or worn out pneumatic tire casings, and has devised a vehicle tire made up of discarded or worn out pneumatic tire casings, fire or steam hose, which will have the elasticity of solid tires or cushion tires, and at a small fraction of the cost of the production of such tires.



In carrying out the invention, the discarding casings are cut into appropriate lengths, and then nested and secured together to form an approximately solid tire, or one with an enclosed air pocket, in which latter case the tire is in the nature of a cushioned tire. The tire may be practically continuous throughout the circumference of the wheel, but when made of short sections or blocks repairs are greatly facilitated.

The tire casings may be so nested as to present the tread portion of the outer one of the nested tires to the ground, or the nested sections of the tire may be reversed, so that the adjoining edges are presented to the ground. The sections may be provided with suitable securing means, such as nails or screws, so arranged as to present the heads to the ground, in which case the tire becomes anti-skidding.

Three forms of the invention are shown in the accompanying cut. The figure at the top shows a form of tire where discarded outer casings are utilized in their entirety, so far as their cross sectional extent is concerned, and such outer casing, indicated at 36, may be utilized in com-

paratively long or comparatively short circumferential sections. In this figure two such sections are indicated as mounted upon the rim 37, shaped to receive the beads 38 provided on all outer casings. The rim is shown as provided with flanges 39 adapted to receive and lock the beads to the rim. Bolts 41 traverse the portion of the tire immediately between the flanges of the rim, and not only hold the tire firmly in place, but because of the sectional type of the tire, prevent its being dislodged from the rim. The outer casing 36 is shown as enclosing a suitable number of layers 42, representing portions of discarded tire casings or steam hose or fire hose. A tread portion 43 is cut so as to have flattened side portions 44, being fastened in place by means of screws 45 which serve also as anti skidding means.

In the lower figure to the right, the outer casing, marked 36a, is provided with a filling made up of sections 42a of discarded tire casings, hose, or the like, which are so assembled as to present the cut edges to the tread portion of the tire. The parts of the tire are secured together and to the rim by screws 45a.

In the lower figure to the left, the tire casings are nested so as to present the normal curved surface of the casing of largest diameter to the tread surface of the tire. The casings are so cut that the parts will nest tightly within an outer section and are united by screws 24 extending through washers 25 or any other suitable means. In this figure three casing sections 26, 27 and 28 are shown. Such an arrangement makes a very serviceable tire from three and one-half to four inches in diameter, with an inner cavity 29 as long as the block.

The invention is not limited to the type of rim with which the tire is used. By the construction shown, a cushioned tire is provided possessing all the advantages of a solid tire and many of the advantages of a pneumatic tire, with none of the disadvantages, and at a less cost than any tire on the market.

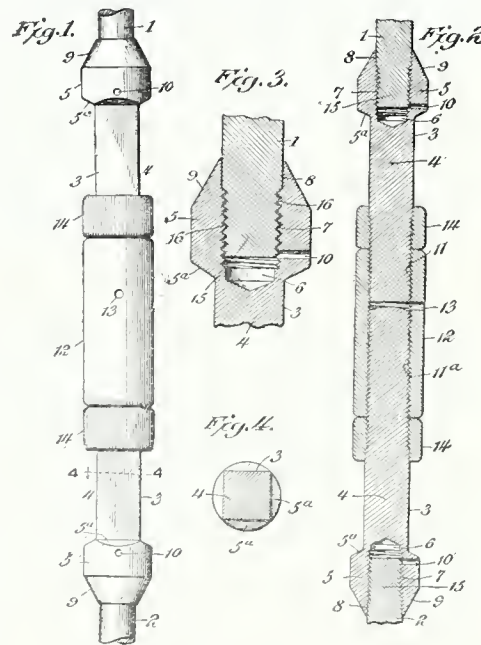
Sucker Rod Coupling.

The invention shown in the accompanying illustration is a rod coupling designed for use in deep wells. In order that sucker rods may be conveniently handled, they are made in comparatively short sections and are provided with couplings by means of which the sections may be joined in alignment to make a rod of the desired length. Difficulty has been encountered in the breaking of the sucker rods at the couplings, due to the weakening of the rod by the cutting of threads thereon, so that the expedient has been employed by enlarging or upsetting the ends of the rods, and then threading them, resulting in the threaded ends at the base of the threads being as thick as or thicker than the main body of the rod.

The accompanying cut represents an invention designed by Clarence L. Parker, of Los Angeles, Cal., an inventor who has given much time and thought to the solution of this problem. As shown, the sucker rod sections 1, and 2, are of the same diameter throughout, except that the ends are threaded in the usual manner without any attempt to first enlarge these ends by upsetting them. There is provided

a terminal 4 for each end of the rod of sufficiently larger diameter to permit the cutting of exterior threads on one end for entrance into the usual coupling sleeve 12, while the other end 5 is suitably enlarged and formed with an axial socket interiorly threaded to receive the threaded end of the sucker rod 1, 2. This socket 6 is counterbored at its entrance end for a suitable distance, while the threaded portion of the socket and the threaded end of the sucker rod are so related that the counterbored portion of the socket will receive a suitable length of the smooth unthreaded portion of the sucker rod adjacent to the threads.

To provide positive connection between the sucker rod and the threaded end extension 4 thereof, both the threaded end of the rod and the socket end of the extension are suitably heated, and a cementing material, such as solder, is applied, and while the cementing material is in the melted condition, the parts are screwed together, whereupon when the parts have cooled sufficiently to allow the solidification of the cementing material, there is a union provided which defies any forces tending to separate the rod and end extensions under ordinary conditions of service.



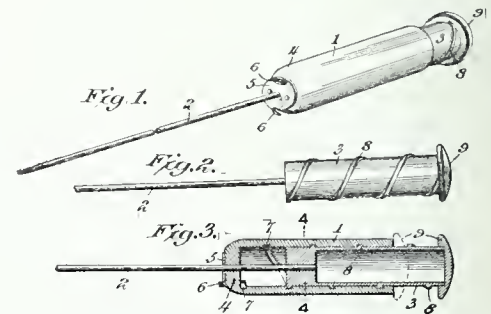
In the illustration, which represents four different views, Figure 1 is an elevation of the sucker rod. Figure 2 is a longitudinal diametric section. Figure 3 is an enlarged longitudinal diametric section of one end of a sucker rod and the socket end of the extension showing the cementing material in place. Figure 4 is a section on the line 4-4 of figure 1.

These figures show a coupling for the two sucker rod sections 1 and 2. A lock nut 14 made of harder material than the coupling sleeve 12 is mounted on the portion 4 at the top and bottom of the coupling sleeve. The nuts 14 being made of harder material than the coupling sleeve serve to resist wear and protect the sleeve from the effects of engagement of the same with the inner walls of the well casing. The invention is the product of years of experience of the inventor, and is believed to efficiently carry out the objects sought by him.

A Novel Hat Pin.

Many attempts have been made to improve hat pins for ladies' hats with a view of removing some of the objections made thereto, but apparently success has not yet been achieved, for inventors continue to devise improvements along this line. One of the

most ingenious hat pins which has been brought to our attention is the one patented by Alexander B. Kokernot, of New Orleans, La. Mr. Kokernot has given considerable study to the subject of hat pins, and has patented a number of different forms, but the one shown in the accompanying illustration is believed to be the simplest and best he has thus far patented. The cut shows three different figures, figure 1 being a perspective view of the pin, with the pin member 2 partially telescoped into the head member 1; figure 2 showing a side elevation of the pin member and carrier, and figure 3 a longitudinal section of the pin and carrier, the latter being telescoped within the head.



Referring to the illustration, the head member 1 is closed at its inner end and open at its outer end, being made in the form of a cylinder. Within the head there is formed a helical groove 7 which receives a helical rib 8 provided on the exterior of the carrier 3. The pin or shank 2 is fixed to the carrier and is movable therewith. At the outer end of the carrier a cap 9 is provided which is made of such diameter as to be readily grasped by the fingers of the user. By manipulating the cap the carrier is moved inwardly and outwardly within the head 1. The pitch of the groove 7 and the rib 8 is long, so that by a single revolution of the carrier it is made to progress within the head for a considerable distance, forcing the shank or pin outwardly with it.

At the inner end of the head 1, there is provided a plate 5 having diametrically opposite prongs 6 formed thereon, and so disposed that by a twisting action of the head in one direction the prongs are caused to enter the material of the hat and lock the head thereto. By a reverse twisting movement of the head the prongs are released from the hat.

In practice, when the carrier 3 with the pin or shank 2 has been screwed into the head until further movement is arrested by the engagement of the cap with the outer end of the head, the pin is then projected to the greatest extent, and the latter may be introduced into the hat and secured thereto by a twisting action of the head, bringing the prongs 6 into intimate relation with the fabric of the hat. If it is desired that the shank or pin should be shorter than its full length, then the carrier is rotated, thereby moving the shank or pin for a corresponding distance. The adjustment of the pin or shank and carrier may be made at any time, whether the head be fastened to the hat or not.

By this construction a hat pin of extreme simplicity is provided in which the degree of projection of the shank or pin is regulated at will, so that the pin is adapted to hats of different diameters. It will be noted that the pin when assembled comprises but two separate parts, one being the head, and the other the carrier with the shank fixed thereto. All springs, catches and the like are wholly eliminated.

LATEST COURT DECISIONS IN PATENT, COPYRIGHT AND TRADE-MARK CAUSES.

GRINNELL WASHING MACH. CO. v. WOODROW et al.

PATENTS—VALIDITY AND INFRINGEMENT—WASHING MACHINE.

(District Court, S. D. Iowa, C. D. Sept. 15, 1913. 209 F. R. p. 621.)

The Phillips patent, No. 950,402, for gearing devices for washing machines, while the elements are old is for a new combination of utility, and discloses invention. Claims 5 to 8, inclusive, also held infringed.

RAJAH AUTO SUPPLY CO. v. REX IGNITION MFG. CO.

(District Court, S. D. New York, Nov. 19, 1913. 209 F. R. p. 622.)

PATENTS—CONTRIBUTORY INFRINGEMENT—VIOLATIONS OF RESTRICTIONS ON USE OF ARTICLE.

A notice placed on the packages in which a patented article is sold imposing as a condition of the sale a requirement that no parts not made by the seller shall be substituted for those sold, under penalty of infringement of the patent, is lawful and enforceable, and one who with knowledge of such restriction sells parts to be resold and used in violation of it is chargeable with contributory infringement.

SIROCCO ENGINEERING CO. v. B. F. STURTEVANT CO.

PATENTS—SUIT FOR INFRINGEMENT—DECREE.

(District Court, S. D. New York, Dec. 23, 1913. 209 F. R. p. 624.)

Where a bill alleges infringement of claims of a patent as to which little or no evidence was taken, and which were not relied on, discussed by either party, or considered on the final hearing, the court is not required to pronounce any decree whatever as to such claims.

O'BRIEN-WORTHEN CO. v. STEMPEL

(Circuit Court of Appeals, Eighth Circuit, Dec. 11, 1913. 209 F. R. p. 847.)

1. PATENTS—CLAIMS—ESTOPPEL BY ACQUIESCENCE IN REJECTION AND AMENDMENT.

The patentee in letters patent No. 638,446, who described and claimed in his original petition for a patent on improvements in gum plasters an elastic medicated suction cup, a suction cup adapted to contain a medicament in the form of a pasty composition, a medicated piece of raw cotton and in any other form, and a rubber suction cup combined with an absorbent material for holding and retaining the medicament and who acquiesced in the rejection of all these claims on Russell's patent, No. 624,545, and Kusnik's patent, No. 647,003, amended his petition and accepted a claim for an elastic cup to whose inner surface an absorbent lining for holding and retaining a medicament is securely fixed, is estopped from maintaining that this claim is infringed by the manufacture and sale of an elastic cup to whose inner surface a pasty composition consisting of a dextrine, water, and the medicament oleoresin of capsicum, is applied and permitted to dry into a solid adhesive lining before its sale or use.

2. PATENTS—CLAIMS—ESTOPPEL BY ACQUIESCENCE IN REJECTION AND AMENDMENT.

If a patentee acquiesces in the rejection of his claims on references cited in the Patent Office and accepts a patent on an amended or substituted claim, he is thereby estopped from maintaining that the amended or substituted claim covers the devices or combinations shown in the references, and from successfully claiming that it has the breadth of the claims that were rejected, but he is not estopped from claiming and securing by his amended claim every known and useful improvement which he has invented and which is not disclosed by the references.

3. PATENTS—CLAIM—LIMITATION BY OLD USE—"INVENTION."

The application of an old device to a new use is not always or generally even patentable. It is only when the new use is so remote and remote from that to which the old device has been applied, or for which it was conceived, that its application to the new use would not occur to the mind of the ordinary mechanic skilled in the art, that

there is invention in the conception of its application to the new use and the old use fails to limit the claim of such application.

4. PATENTS—RIGHTS OF PRIOR PATENTEE—KNOWLEDGE OF USES.

A prior patentee who has plainly described and claimed his device or combination has the right to every use to which it can be applied and to every way in which it can be utilized to perform its function, whether he was aware of all these uses or not.

5. PATENTS—SPECIFICATION AND CLAIMS—CONSTRUCTION.

The specification and claims of a patent constitute a contract between the United States and the patentee, and they must be read and construed together in the same way and by the same rules by which other contracts are interpreted.

The specification which forms part of the same petition or application as the claims must be read and interpreted with them, not for the purpose of limiting or of contracting, or of expanding the latter, but for the purpose of ascertaining from the entire agreement, of which the specification and the claims are alike a part, the actual intention of the parties.

DRUM v. TURNER.

(District Court, D. Minnesota, F. D. Dec. 17, 1913. 209 F. R. p. 534.)

1. PATENTS—CONSTRUCTION—ESTOPPEL BY ACQUIESCENCE IN REJECTION OF CLAIMS.

Where a patentee acquiesced in the rejection of claims in his application on the ground that they were anticipated by a prior patent, he is estopped to claim that the patent as granted covers the construction shown by such prior patent.

2. PATENTS—VALIDITY AND INFRINGEMENT—CONCRETE FLOORING.

The Norcross patent, No. 638,542, for a reinforced concrete flooring, claim 2, held void for anticipation or as for a function; and claims 1, 3, and 4 not infringed.

NATIONAL ELECTRIC SIGNALING CO. et al. v. TELEFUNKER WIRELESS TELEGRAPH CO. OF THE UNITED STATES.

(District Court, S. D. New York, June 12, 1913. 209 F. R. p. 556.)

1. PATENTS—VALIDITY—INFRINGEMENT—APPARATUS FOR WIRELESS TELEGRAPHY.

The Fessenden patent, No. 706,736, for apparatus for wireless telegraphy, as limited by the prior art, held not infringed.

2. WORDS AND PHRASES—"TUNE"—"TUNING."

A receiving system of a wireless telegraph is in "tune" if the period of the induced pulses is exactly the same as the interval between the waves themselves, so that the return of the first pulse to the receiving antenna and from the other end would be exactly synchronous with the reception of the second wave by the antenna itself, and the controlling of this result by varying inductance and the capacity of the receiving system so as to be exactly the same as that of the transmitter is "tuning."

HESS-BRIGHT MFG. CO. et al. v. FICHEL et al.

(District Court, E. D. Pennsylvania, Dec. 29, 1913. 209 F. R. p. 867.)

PATENTS—VALIDITY AND INFRINGEMENT—BALL-BEARING.

The Conrad patent, No. 822,723, for a ball-bearing, in view of the prior art, must be limited to a device in which the concentric rings forming the raceway are solid and unbroken throughout, which was the central thought of the invention. So construed, held not infringed.

CLIP BAR MFG. CO. v. STEEL PROTECTED CONCRETE CO.

(District Court, E. D. Pennsylvania, Sept. 11, 1913. 209 F. R. p. 874.)

1. PATENTS—SUIT FOR INFRINGEMENT—EFFECT OF PRIOR ADJUDICATIONS.

An adjudication of the invalidity of a patent in one circuit does not render the question res judicata except as between the parties to the suit, nor prevent the bringing of other suits for infringement against different defendants in other circuits.

2. TRADE-MARKS AND TRADE-NAMES—UNFAIR COMPETITION—INTERFERENCE WITH BUSINESS OF ANOTHER.

Notices of claims of infringement given by the owner of a patent to customers of a

manufacturer of a similar article, or even threats of suit, if not justified, are within its rights and not actionable as acts of unfair competition.

HUEBSCH v. ARTHUR H. CRIST CO.

(District Court, N. D. New York, Jan. 3, 1914. 209 F. R. p. 535.)

1. COPYRIGHTS—ACTIONS—SUFFICIENCY OF EVIDENCE.

In an action for infringement of a copyright, evidence held sufficient to show that the copyrighted book was printed from plates made from type set within the limits of the United States.

2. COPYRIGHTS—ACTIONS—SUFFICIENCY OF EVIDENCE.

Under the statute in force in 1903 and 1904 which provided that no person should be entitled to a copyright unless he should, not later than the day of publication, deliver to the librarian of Congress, or deposit in the mail addressed to him, two copies of the copyrighted book, and providing that such two copies shall be printed from type set within the limits of the United States or from plates made therefrom, in a suit for infringement, evidence that a printing office within the United States was employed to print the book, and that it was afterwards received therefrom printed and ready for the binder, shows sufficiently that the book was printed from type set within the United States or from plates made therefrom, and the possibility that the work was done outside the United States need not be negated.

3. COPYRIGHTS—ACTIONS—SUFFICIENCY OF EVIDENCE.

In a suit for infringing a copyright, evidence in connection with the certificates of the librarian of Congress and the register of the copyrights held sufficient to show the deposit of the title of the book before publication and the deposit of two copies thereof on the day of publication with the librarian of Congress, as required by the statute in force in 1903 and 1904.

4. COPYRIGHTS—ACTIONS FOR INFRINGEMENT—BURDEN OF PROOF.

In a suit for infringing a copyright, though there was no denial that complainant's book was duly copyrighted, he was bound to make proof of his copyright.

5. COPYRIGHTS—ACTIONS FOR INFRINGEMENT—SUFFICIENCY OF EVIDENCE.

In a suit for profits and damages from the infringement of a copyright, evidence held to show negligence on the part of defendant and that it was defiant after having its attention called to the infringing character of the publication.

6. COPYRIGHTS—ACTIONS FOR INFRINGEMENT—ACCOUNTING.

Under a bill alleging the infringement of a copyright and asking for an accounting of the profits arising from the sale of defendant's piratical leaflet, and that defendant be required to pay such damages as complainant had suffered, as well as all profits which defendant had made, the court could not arbitrarily find the amount of damages and profits, but would refer the case to a master to take and state an account, unless the parties agreed otherwise.

7. COPYRIGHTS—ACTIONS FOR INFRINGEMENT—SUFFICIENCY OF EVIDENCE.

In a suit for infringement of a copyright, where complainant proved his copyright, that all books printed, published, and sold by him bore the copyright notice required by law on the page following the title page, and it was admitted that defendant had printed and sold a leaflet which was a copy of a substantial part of complainant's book, complainant was entitled to an accounting for profits and damages.

8. COPYRIGHTS—INFRINGEMENT—ACTIONS—RELIEF.

Act March 4, 1909, c. 320, § 25, 35 Stat. 1081 (U. S. Comp. St. Supp. 1911, p. 1430), providing that the infringer of a copyright shall be liable to an injunction, to pay the copyright proprietor such damages as he may have suffered, as well as all profits made by the infringer, and that the court may also, in its discretion, allow certain specified amounts for each infringing copy, applies to infringements of copyrights obtained prior to its passage, where the infringements were subsequent thereto.

PREST-O-LITE CO. v. H. W. DAVIS et al.

(District Court, S. D. Ohio, W. D. Oct. 1, 1913. 209 F. R. p. 917.)

TRADE-MARKS AND TRADE-NAMES—UNLAWFUL COMPETITION—USE OF GAS CONTAINERS FOR COMPETING GAS.

Complainant manufactures and sells acetylene gas for automobile illumination put up in metal containers of peculiar construction and has also provided an exchange system by which an automobile owner, having once purchased a tank, can exchange it when empty for a filled tank at a nominal charge in almost any town in the United States of over 2,000 inhabitants. Defendants sold "Searchlight" gas for similar use, put up in different containers; but, in order to enable purchasers of its gas to take advantage of complainant's exchange system, purchased a quantity of complainant's empty Prest-O-Lite tanks, which defendants procured to be filled with Searchlight gas and which they sold to consumers. Held that, while defendants had a perfect right to purchase empty Prest-O-Lite containers from the owners, complainant's exchange system was a property right which was impaired by defendants filling such tanks with Searchlight gas and selling them, which constituted unlawful competition, though defendants pasted a paper label thereon from which the purchaser might, by close attention, discover that the gas contained therein was not Prest-O-Lite.

PREST-O-LITE CO. v. DAVIS et al.

(District Court, S. D. Ohio, W. D. Oct. 1, 1913. 209 F. R. p. 917.)

TRADE-MARKS AND TRADE-NAMES—UNLAWFUL COMPETITION—USE OF GAS CONTAINERS FOR COMPETING GAS.

Complainant manufactures and sells acetylene gas for automobile illumination put up in metal containers of peculiar construction and has also provided an exchange system by which an automobile owner, having once purchased a tank, can exchange it when empty for a filled tank at a nominal charge in almost any town in the United States of over 2,000 inhabitants. Defendants sold "Searchlight" gas for similar use, put up in different containers; but, in order to enable purchasers of its gas to take advantage of complainant's exchange system, purchased a quantity of complainant's empty Prest-O-Lite tanks, which defendants procured to be filled with Searchlight gas and which they sold to consumers. Held that, while defendants had a perfect right to purchase empty Prest-O-Lite containers from the owners, complainant's exchange system was a property right which was impaired by defendants filling such tanks with Searchlight gas and selling them, which constituted unlawful competition, though defendants pasted a paper label thereon from which the purchaser might, by close attention, discover that the gas contained therein was not Prest-O-Lite.

BALL et al. v. COKER et al.

(Circuit Court of Appeals, Fourth Circuit, Nov. 4, 1913. 209 F. R. p. 275.)

1. PATENTS—PATENTABILITY.

A piece of cardboard with printed matter thereon employed as a means in a system of doing business may be patentable; it being no objection that the elements employed are not themselves patentable.

2. PATENTS—VALIDITY AND INFRINGEMENT—MENU CARD.

The Gellenbeck patent, No. 432,899, for a combination of a menu card and meal checks so arranged that when any check is detached a portion of the remainder is rendered incomplete as a bill of fare, whether or not the device is correctly designated as a combination is sufficiently definite in its description, and, in view of the utility and extended use of the article, must be conceded novelty and invention; also, held infringed.

3. PATENTS—PATENTABILITY—COMBINATION.

As applied to patent law, when the elements are so united that by their reciprocal influence upon each other, or their joint action on their common object, they perform additional functions and accomplish additional results, the union is a true "combination."

STONE & McCARRICK, Inc., v. DUGAN PIANO CO. Limited, et al.

(District Court, E. D. Louisiana, Jan. 21, 1914. 210 F. R. p. 399.)

PATENTS—TRADE-MANUAL—INFRINGEMENT—REPLICATION AS ADVERTISEMENT.

Where plaintiff copyrighted a manual of instruction consisting of a system of salesmanship designed to teach piano dealers how to attractively advertise, and containing forms, models, or diagrams of advertisements, the copyright did not prevent a dealer from making a use of the work, which resulted in the publication of a part of the book in the form of an advertisement, nor did such publication constitute an infringement.

MECHANICAL INVENTIONS

Patents for which have been procured through the Patent Soliciting Office of E. G. Siggers, Patent Lawyer, Washington, D. C.

William J. Tekippe, New Hampton, Iowa.—The patent covers a life boat to be carried on ship board and launched in case of emergency, and adapted to comfortably accommodate a comparatively large number of persons. An object of the invention is to provide a practically non sinkable life boat equipped with an air tank to enable it to float indefinitely until its occupants are rescued, and provided with means for completely protecting them from the elements. A further object of the invention is to provide a thoroughly ventilated life boat adapted to contain a relatively large quantity of provisions, and having an easily accessible outer deck for the accommodation of a look out and for the convenience of the occupants of the life boat in fair weather.

George H. Wartman, Montesano, Washington. Dust Pan Attachment.—The object of this invention is to provide a device adapted to be readily applied to the handle of an ordinary dust pan, either during or after the manufacture of the same, and capable of supporting the dust pan in proper position upon a floor or other supporting surface to receive dust and other accumulations from a broom. A further object of the invention is to provide an attachment of this character, adapted to clamp the foot of the operator to enable the dust pan to be lifted and carried by the same, and also to leave both hands of the operator free for sweeping, and at the same time obviate the necessity of assuming a stooping position while using the dust pan. A further object of the invention is to enable the attachment to form a handle for the dust pan and a support for the broom when the same are not in use.

Stephen E. Burke, Hamilton, Ind., inventor; Timothy H. Dirrim, same place, assignee of the second patent; Rufus M. Isenbart, Edon, Ohio, assignee of the fourth patent. Four patents.—The first patent relates to an automobile climber designed for use on automobiles for enabling the wheels thereof to grip firmly the ground or other supporting surface to prevent the wheels from slipping when traveling over roads, ice, or when ascending or descending steep inclines. The object of the invention is to provide a device of this character adapted to fit vehicles of different kinds and sizes, and capable, when applied to a wheel, of permitting the tire thereof to expand and contract and thereby avoid interfering with the easy running of the vehicle.

It is the aim of the invention of the second patent to provide a burglar proof burial vault which will be air, water, and vermin tight, and at the same time, be capable of permitting the escape of gas resulting from the decomposition of a body, so that injury to the vault from internal pressure of such gases will be effectually prevented.

The third patent covers a button remover, and the object of the invention is to provide a device adapted to be attached to a pair of shears and capable of being easily operated with great rapidity and of severing the threads by which buttons are attached to shoes and various other articles.

It is the object of the invention of the fourth patent to provide a windmill lubricator adapted to be readily applied to a windmill, and capable of being operated from the ground and of enabling the bearings of the windmill to be supplied with an accurately-measured predetermined quantity of oil. The windmill lubricator comprises a reservoir provided with a plurality of separate troughs having inwardly projecting portions open at the top, pipes extending from the troughs to the bearings to be lubricated, an oscillatory frame mounted within the reservoir and equipped with buckets movable to and from the troughs, an exterior pulley connected with the oscillatory frame, an operating connection having a flexible portion arranged on the periphery of the pulley and adapted to move the oscillatory frame in one direction, and a spring for swinging the frame in an opposite direction.

Ernest E. Morlan, Independence, Mo. Two patents.—The first patent covers a stove pipe fastener capable of firmly holding together a plurality of stove pipe sections, and of securely maintaining the stove pipe in the stove hole of a chimney. The device, which may be readily applied to a stove pipe without the aid of tools, and which is concealed from view, consists of an attaching plate arranged in the chimney opening and provided at its outer end with a projecting flange and having a series of perforations at its inner portion, a wire extending through the stove pipe sections and provided at its outer end with a hook for engaging one of the sections, and a bar secured to the other end of the wire and engaging the attaching plate and the inner face of the front wall of the chimney.

The second patent relates to a stove pipe thimble designed to be permanently mounted in the chimney, and equipped with interiorly arranged means for limiting the inward movement of the stove pipes into the thimble and of securely connecting the stove pipe to the chimney. The stove pipe thimble is adapted to drain water back into the chimney to prevent water from the chimney from soiling wall paper or other wall covering.

David J. Farthing, Butler, Tenn. Harrow.—This invention has for its object to provide a harrow of strong and durable construction, which, at the same time, will be light and easily handled, and capable of smoothing and leveling the surface of the ground. The harrow comprises in its construction spaced transverse bars, harrow blades arranged in the spaces between the bars, and clamps extending across the spaces between the bars and composed of two angle members having horizontal flanges secured to the bars and vertical flanges located at opposite sides of the blades and engaging the same, and means for adjustably connecting the vertical flanges to cause the same to grip the blades. The blades are arranged in transverse rows with the blade of each row in parallelism, and the rows of blades are alternately set at opposite angles. Also, each row has its blades set at a slightly different angle from the blades of the other rows.

Clarence A. Bahruth, Arkansas City, Kansas. Valve.—In every modern dwelling, it is customary to have cold water pipes to supply the various apparatus throughout the building, and also hot water pipes fed from the hot water boiler, which receives its supply from the cold water source and then

supplies it to the distributing pipes of the hot water system. The object of the present invention is to provide a combined cut-off and drain valve to cut off the supply of cold water, said valve having the additional feature of another valve structure which controls a drain system connected with the hot water side of the house system in such manner that when the main supply valve is turned to the cut off position, the cold water side will bleed into a system controlled by the second valve structure, and the latter will bleed the hot water system, whereby the simple act of turning the main valve to cut-off position causes the entire house system of both the cold and hot water side to be drained, and thus damage is prevented in case of freezing.

John S. Ward, Weimar, Texas.—Garden Implement.—The object of this invention is to provide, in one tool, a hoe or weeder adapted to turn over the soil and to cut the roots of grass and weeds in the manner of a scuffle hoe, and also a rake which may be used in the ordinary manner by simply reversing the device. The invention consists of an blade, a shank secured rigidly to the blade and having its free end formed with a toothed segment, a handle provided with forwardly extending arms and pivoted to the shank, a locking lever pivoted to the handle and having one end widened and beveled to enter between the teeth of the segment, the edge of said widened and beveled end of the lever being disposed eccentrically with the pivot thereof so as to provide a wedging engagement between the tooth engaging portion of said lever and the teeth of said segment.

Jacob Fisher, Roann, Indiana. Two patents.—The first patent relates to a wire stretcher designed for stretching barbed or smooth wire or woven wire fencing, and also to draw the ends of a broken wire together in overlapped relation and to hold the same while they are being spliced. It is also an object of the invention to construct the wire stretcher so that it may be employed for pulling trees and stumps and also for use as a lifting jack for raising heavy machines, houses and various other loads. The combination device includes a screw, a carrier slidable along the screw and having a lifting head, a nut engaging the screw and actuating the carrier, and a shoe arranged at one end of the screw and adapted to support the same in a vertical position when used as a jack. The device is provided at the other end of the screw with an anchoring sleeve, and it is equipped with a clevis which is connected with the carrier.

The second patent covers a fence wire fastener designed particularly for use in the attachment of fence wires to a concrete post, and employing interiorly arranged nuts, and adapted to exclude air from the interior of the post at the points of attachment, whereby the life or durability of the parts will be materially increased. The fence wire fastener comprises in its construction a plastic post having a vertical series of horizontal openings, nuts embedded in the post at the inner ends of the openings, bolts engaging the nuts, a series of brackets fitted against the post and secured to

the same by the bolts, and a rod extending through the brackets and adapted to confine the fence wires therein.

George F. Garrity, Scranton, Pa. Two patents.—It is the object of the invention of the first patent to provide means whereby the steering head of a motor vehicle will become automatically locked when released by the operator, so that should the operator accidentally or purposely release the steering head, the vehicle will continue the course it was pursuing and any danger of the vehicle swerving because of the lack of control of the steering head will be avoided. The device includes a clutch for coupling the steering mechanism to a fixed part of the vehicle, a steering wheel, an annular grip member carried by the steering wheel, and connections between the grip member and the clutch for causing a movement of the clutch to the unclutched position on the grasping of the steering wheel by the operator.

The second patent relates to a railroad spike equipped with means for securely holding the spike in engagement with the tie and thereby resisting more effectually than heretofore the tendency of the rails to spread. It is also an object of the invention to enable the spike to close tightly the entrance to the opening in the tie made by the spike while being driven and thereby prevent the entrance of water, which causes the tie to rot around the spike and results in loosening the latter. The railroad spike comprises a shank rectangular in cross section and having substantially the same cross sectional area throughout the major portion of its length, and provided at its inner face with a series of open-ended recesses which form intervening lugs having flat end faces in the vertical plane of the shank, a head, and a smooth flared tapering neck connecting the head and the shank and flared on all four sides so as to completely fill and plug the opening formed by the shank.

Nathan Johnston, Nocono, Texas. Fireplace.—The present invention is designed to provide a cheap and practical chimney and fireplace adapted to be readily manufactured and easily and quickly arranged for use, and equipped with an interiorly-arranged damper for controlling the passage or flue of the chimney, and with a vertically movable blower or screen adapted to cooperate with the damper for controlling the draft so as to be arranged to expose the fire or to close completely the fireplace, either to protect a room or apartment from the fire during the night, and at other times, and also during seasons of the year when a fire is not required. The chimney comprises in its construction front, rear, and side walls, inner upright side plates extending from the front of the chimney to the rear wall thereof and arranged in spaced relation with the side walls to form side spaces, an inner rear plate extending upwardly from the bottom of the chimney in spaced relation with the rear wall to provide a rear space and connected at its side edges with the inner side plates, a blower mounted at the fireplace opening and slidable downwardly and upwardly to cover and uncover the same, and a damper pivotally mounted between the side plates, in the space between the rear plate and the rear wall of the chimney and at a point above the upper edge of the said rear plate, said damper extending forwardly over and resting upon the rear plate, and at its front edge arranged in close proximity to the blower.

NEW PATENTS FOR SALE.

Advertisements inserted in this column for 10 cents a line (about 7 words) each insertion. Every new subscriber sending \$1.00 to THE INVENTIVE AGE will be entitled to the AGE one year and to five lines three times FREE. Additional lines or insertions at regular rates.

FOR SALE—Patent No. 1,085,894. Permutation Lock. A very simple and reliable lock. Address, Peter Eagle, No. 40 Harrison Ave., Harrison, N. J. jy

FOR SALE—Patent line and hitch strap fastener. Has merit. Sell cheap. Address, W. N. Corbit, Riverton, Iowa. aug

FOR SALE—Prospering business manufacturing Patent No. 1,080,323. Will sell one-half interest in patent and one-half interest in business for \$1,800. Can satisfy skeptic. Address, Box 271, Bradford, Pa. aug

FOR SALE—U. S. Patent No. 1,083,375, electrically warmed foot-rest for boot-blackening stands. Price three thousand dollars net. Address, Thomas Plimley, Victoria, B. C., Canada. aug

FOR SALE cash or royalty—Patent No. 1,001,178. Combination highgrade mechanical tool for universal use. Also other inventions. Address, E. Hood Corson, East Rochester, N. H. aug

FOR SALE—Patent No. 1,003,395. Automatic Fire Alarm. A little wonder of the age. Will sell for cash or cash and royalty. Here is something no hotel should be without. Here you have something that will net some one a fortune. Address, E. A. Gehrke, 427 Little Building, Lincoln, Nebraska. aug

FOR SALE—Patent No. 1,088,545, dated Feb. 24, 1914. "Sure On" Clothes Fastening Device. For particulars address Edward Sears Crumb, Box 6, Charlestown, R. I. jy

FOR SALE—Automatic Shut-Off and drain cock for water pipes in buildings. Pipes cannot freeze and burst if this attachment is used. All offers considered. Address, C. D. Blackman, Box 21, Dodge City, Kansas. jy

FOR SALE—Patent No. 1,061,799, dated May 13, 1913. The simplest and most practical invention of spring wheels for autos and all kinds of vehicles. Address, Benjamin Anderson, Reliance, Wyoming. jy

FOR SALE—The Herr Fender for Street Cars. is the best fender on the market. It has proven its efficiency. Light, durable and no intricate parts to maintain. Write for particulars. William Dickenson, 1526 Dublin Street, New Orleans, La. jy

FOR SALE outright—Patent No. 1,079,059, issued Nov. 18, 1913. Trolley Collector Shoe. Can be used on all electric traveling cranes. For further particulars write to William H. Miller, 37 N. 4th St., Emaus, Pa. jy

FOR SALE—U. S. Patents No. 1,017,456, improvements in puncture proof tires for automobile wheels; and No. 1,054,604, improvements in lifting jacks, and particularly in screw jacks. Will sell cheaply. For particulars address, Wm. Pavlik, Box 132, Bayport, New York. jy

FOR SALE—Patent No. 1,082,602, Flashing. Does away with the old many piece tin shingle. The only water tight flashing. Address, John E. McCarville, 541 3rd Ave. N., Fort Dodge, Iowa. jy

FOR SALE—U. S. Patent No. 1,080,154. Fire Arm Silencer. The most effective one made. No hoax. The real thing. A money maker. Address, H. P. Moore, 89 Whittlesey Ave., Norwalk, Ohio. jy

FOR SALE—Patent No. 1,074,536. Safety feed water controller for boilers. A very necessary appliance for every steam boiler. Patent will be sold outright or on royalty. Address, Fred Wallace, Route 3, Eden, New York. jy

FOR SALE—Patent for splicing cotton ties, with thirteen machines ready for work. Ready demand for spliced ties in cotton belt. Also used for splicing barrel hoops. Great opportunity for the right party. Will sell outright or State rights. J. L. Newton, Social Circle, Ga. jy

FOR SALE—Fertilizer Distributor and Seed Sower Combined. U. S. Patent No. 1,011,071, Canadian Patent No. 142,439. Also spring railroad tie, U. S. Patent No. 1,046,480, Address, Louis Mehlberger, General Delivery, Detroit, Michigan. jy

FOR SALE—Patent No. 1,080,663, patented Dec. 9, 1913. Harrow and Cultivator. Cheaply manufactured. For further particulars address owner, Adolph Stavinocha, Engle, Tex. jy

FOR SALE—Singletree Patent issued May 6, 1913. Farmers need them. Can be manufactured for thirty-five cents each. Address, George Culli, Millstadt, Illinois. jy

FOR SALE cash or royalty—U. S. Patent No. 1,081,417. Smoke consumer for gas and gasoline lights. Prevents blacking and soiling of ceiling and walls. Address, Albert J. Wilkins, Coal Center, Pa. jy

FOR SALE—Patent No. 1,045,045, dated Nov. 19, 1912. Lumber piling machine. Designed for handling lumber, logs, rails, or other heavy material, for transferring from a wagon to a stack or in loading and unloading cars, boats and other vehicles. Is adjustable to accommodate different lengths of material. Address, William Larson, Bonner, Montana. jy

FOR SALE—Patent No. 1,077,957, issued Nov. 11, 1913. A hay scatterer. Address, Peder J. Anderson, 108 S. Morris St., Stoughton, Wis. jy

FOR SALE—New patented wrench of great merit. Would sell outright or on royalty basis. Instantaneous Wrench Co., Box 311, Grand Saline, Texas. jy

FOR SALE—Patent No. 965,411. Combination cultivator and furrow maker. Also Patent No. 971,218, rotary harrow, outright or royalty. Address, Sigmund Schaller, Haddan, Conn. jy

FOR SALE—Patent No. 1,078,075, dated Nov. 11, 1913. Rail Tie. This rail tie is simple, strong, reliable, economical and ornamental. For further particulars address J. D. Warrell, Deweyville, Texas. jy

FOR SALE Patents—or part interest in locks for public buildings. The only both ways operated single or double door locks on the market; catches either way, or makes push doors. Address, A. M. Hoes, Grand Island, Nebraska. jy

FOR SALE—I have patent pending, Serial No. 787,960, on an automatic lock for the inside of double doors, such as cupboards and the like, in the place of a hook. In opening the first door, the second door is unlocked, and closing the first door the second door is locked automatically. Simple and cheap to manufacture. Write for particulars, Frank E. Davis, R. F. D. No. 2, Payette, Idaho. jy

FOR SALE—Patent No. 1,022,626, dated April 9, 1912. Self-detaching holdback for all single horse vehicles. Works automatically and obviates the wrapping of shafts. When the traces are detached the draft animal is free to move forward from the vehicle. Will sell the patent at a reasonable price, as I am in the lumber business and have as much as I can attend to. For full particulars address, W. A. Hagerman, 897 Queens Ave. London, Ont. jy

FOR SALE—Cash. Patent No. 1,049,242, issued December 31, 1912. Combined mop holder and wringer. The mop will perform any one of the three different operations at will and without any adjustment whatever, either as a mop, mop wringer, or scrubber. Walls and ceilings may be cleaned. Simply remove the scrubber. The mop has been thoroughly tested for seven months and has been enthusiastically received by every woman who has tried one. All offers considered. Address, J. W. Krueger, Litchfield, Minnesota. jy

WANTED.

WANTED—Company to manufacture silent self-setting rat trap wire cage. Inspection invited. Something good and new. Cash or Royalty. Particulars apply, H. F. Tyler, Grosse Isle, Manitoba, Canada. jy

BUSINESS OPPORTUNITIES.

EVERYBODY WANTS SMITH'S
END-LOCK STOVE PIPE.

CHAS. F. LAGANKE
MANUFACTURER OF
HIGH GRADE SPECIALTIES
MODELS AND EXPERIMENTAL WORK,
SPECIAL TOOLS.

Card Building, 118 St. Clair Ave. N. E.,
Correspondence Solicited. CLEVELAND, O.

Electrical Review and Western Electrician

Published weekly from the center of the industry, this publication is in the best possible geographical position to gather and present the most important and interesting news of the entire electrical industry.

SUBSCRIPTION PRICE

U. S. \$3.00 per year, Canada \$4.00 per year, Foreign Countries \$6.00 per year. Sample Copy Free

It is seen and read by practically every buyer of electrical material in this country and abroad. Advertising rates on application

ELECTRICAL REVIEW PUBLISHING CO., 507 Marquette Bldg., CHICAGO.

A NEW BOOK FOR INVENTORS

Patents and How to Make Money out of Them,

By W. B. HUTCHINSON.

This is the only book published, giving a detailed and full account, from the author's actual experience, of just what steps are necessary from the time the invention is conceived, to the time it is sold, with a clear and concise resume of the law and practice, legally and commercially, of trade-marks and copyrights. It also tells accurately How and What to invent. How to sell Inventions, Place them on the Market. Interest Capital in them, and to successfully Promote a Stock Company. It also contains an index of forms worth double the price of the book to any one interested.

ELEGANTLY CLOTH BOUND

GOLD STAMPED. \$1.00 Postpaid

Sent with one subscription to AGE for \$1.50

Or will sell separately.

Address—The Inventive Age Pub. Co.,
918 F St., N. W. WASHINGTON, D. C.

HALF-TONES ZINC ETCHINGS
DESIGNS

LANNAN

ENGRAVING

COMPANY

PROCESS ENGRAVERS, ILLUSTRATORS, DESIGNERS.

TRADE-MARK DRAWINGS

EXECUTED.

"Quality and Speed"

POST BUILDING

Fourteenth St., and Pennsylvania Ave. N. W.
Phone, Main 673

SEND FOR YOUR FREE COPY TODAY

OF

MODERN ELECTRICS & MECHANICS.

The big 148-page illustrated monthly magazine that tells you how to make flying machines, wireless sets, motors, engines, home furniture, models, etc.. Invaluable to inventors and everyone who uses tools or is interested in mechanics or electrics. Profusely illustrates and describes these subjects in a style you will easily understand and enjoy.

You should read at least one non-technical magazine and keep up to date on the new wonders and advances in electricity and mechanics.

Fifteen cents per copy on news stands, \$1.50 per year by subscription.

To acquaint new readers with this distinctive illustrated magazine we will send sample copy free on request.

Send for your copy now.

MODERN ELECTRICS & MECHANICS 813 RELIANCE BLDG.,
NEW YORK, N. Y.

ATTENTION INVENTORS!

LISTS OF MANUFACTURERS FURNISHED.

We have increased our facilities for furnishing lists of manufacturers, and now cover every line of industry. The names are obtained from well known directories.

Our charge for each list is one dollar.

In ordering, please state specifically the class of manufacturers desired.

Address: INVENTIVE AGE Pub. Co., Dept. M. 918 F. St., Washington, D. C.

Every subscriber when sending \$1.00 is entitled to a free advertisement, not exceeding five lines, of any patent in which he may be interested. The ad. will be inserted three times.

THE INVENTIVE AGE PUBLISHING CO., Washington, D. C.

I herewith enclose \$1.00 for one year's subscription to

"THE INVENTIVE AGE."

I also enclose ad. for insertion in the (Patents for Sale*) (Want*) column of your paper.

NAME.....

P. O.

STATE.....

*Please indicate in which column you want the ad. inserted.

N. B.—Remit in the way most convenient.

The Inventive Age

Established 1889.

Published monthly by

THE INVENTIVE AGE PUBLISHING CO.,
National Union Building, 918 F Street, N. W.,
WASHINGTON, D. C.

THE INVENTIVE AGE is sent, postage prepaid, to any address in the United States, Canada, Mexico, Hawaii, and Porto Rico, for ONE DOLLAR a year; to any other country, postage prepaid, ONE DOLLAR AND TWENTY-FIVE CENTS.

Correspondence with inventors, mechanics, patentees, and manufacturers, is invited. The columns of this journal are open for the discussion of such subjects as are of general interest to its readers.

Technical matter is particularly desired. We want practical information from practical men.

THE INVENTIVE AGE is independent.

Special facilities for furnishing cuts of any patented device together with descriptive article. Business specials 10 cents a line each insertion; 7 words to the line. No advertisement less than 25 cents.

Address all communications to

THE INVENTIVE AGE PUBLISHING COMPANY,
WASHINGTON, D. C.

Entered at the Post-office as 2nd class matter.

WASHINGTON, D. C., JULY, 1914.

THE SUSPENSION OF PUBLICATION OF THE INVENTIVE AGE.

With this issue of THE INVENTIVE AGE, its publication is suspended. The proprietor, who has been running the paper since May, 1899, has kept it alive at a considerable loss for a number of years; but finds it impossible to continue the sacrifice of time and money involved in the publication of the paper. Various methods of increasing the subscription list were tried, but they have all failed. The support from inventors that was hoped for, has been lacking. This may have been partly due to the fact that the paper was looked upon more as a personal organ, which it was not.

Finding that suspension was only a question of time, effort was made to place the paper in responsible and worthy hands. The publication could have been sold some years ago to a certain firm of attorneys who advertise extensively, and who wished to stimulate their business of soliciting patents, but it was thought unwise to make the transfer because of the reputation of the firm in question before the Patent Office.

We had hoped that one of the patent law associations might be induced to take hold of the paper and run it in the best interests of inventors, for the AGE has been handicapped by the lack of support from attorneys. This was probably due to a misunderstanding of the aims and purposes of the management, which has never sought to make the paper purely "a house organ." The chief object has always been the improvement of conditions both inside and outside the Patent Office, and the AGE has invariably supported every reform in legislation or practice designed to remove some of the burdens from patentees. Manufacturers have their trade weeklies and organs and support them, but it would seem from the experience of THE INVENTIVE AGE, that it is difficult to run a paper in the interests of inventors, and inventors only, without

serious financial loss. This is no doubt due to the fact that inventors as a class, are not rich men, and a dollar a year, the subscription price for the AGE, represents one hundred cents to most of them.

The AGE feels that it has rendered good service to inventors. Those subscribers who have stood by it from the first have testified their appreciation of the purposes of the paper by renewing their subscriptions yearly. It has always been a matter of satisfaction to note the considerable number of subscribers who have renewed their subscriptions without solicitation. In these days of many magazines, when it costs a dollar to obtain every subscription, we have found it peculiarly satisfying to have many of the subscriptions come in without either persuasion or pressure.

Apart from the money, it has cost a great deal of time to keep the AGE running. Many of the articles represented the personal work of the proprietor, and required the expenditure of valuable time and effort on his part to produce them. The advice which was handed out to the readers of the paper for the small sum of \$1 a year was, we believe, worth many times that amount. Certainly, in time spent in the preparation of the articles, it meant a personal sacrifice.

We said at the beginning that the publication of the AGE is suspended. We did not say that its life or its usefulness is ended, for it is quite likely that when there is an improvement in business conditions, the AGE will start anew under different conditions and management. Its past has been an honorable one. It has never allowed itself to be connected with any transaction that was in the least questionable. Every promise or agreement made to its subscribers has been faithfully and honorably kept, and, at this point, we notify the subscribers of the AGE that they will promptly receive a remittance covering the amount due them, no matter if it be only five cents. Every subscriber will receive the precise amount due him, accompanied by a statement. It will take a few weeks to calculate the accounts, but we hope to close up the matter not later than August 1.

We feel keen regret in relinquishing the publication of the AGE. From an experience of fifteen years, we feel that there is a real need for a paper which will represent inventors, and at the same time, be independent of any influence that is inimical to their best interests. We believe, however, that the paper should be published under auspices that will leave it free to exercise independent thought, and not tie it to any one person's interests. It should be published by those whose standing before the Patent Office and the community at large is such as to command entire respect and the support of everyone. No single individual in charge of the AGE could possibly accomplish this.

Therefore, in suspending its publication for the time being, we hope that in the near future it will be possible to announce the resumption of the paper under auspices which will insure success.

A MILD PROTEST.

There is so much to commend in the administration of the United States Patent Office these days, that we are loath to assume the attitude of critic. Therefore, what we have to say under this head must be understood in the friendliest spirit possible.

The only act of the present Commissioner which we are inclined to think was not well-advised was the order issued some weeks ago relative to the correction of drawings by attorneys. Drawings have to be changed frequently in the practice of every attorney. No matter how skillful a draftsman may be, he may miss a reference numeral, or make some trivial error in the execution of the drawings, which, when the Examiner's attention is called to the same, he requires to be corrected. More often, however, there are features of the invention which the attorney does not deem necessary to show, and which the Examiner insists upon having appear in the drawings. In such cases, additional figures have to be made.

Under the former practice, before any drawing could be altered, the attorney had to file a blueprint of the drawing as it was originally made, and then submit a sketch showing the correction or addition that he wished made in the drawing. If the Examiner approved of the change, the attorney was at liberty to order the case down to the draftsman's room and make the corrections there.

By the recent order of the Commissioner, the attorney is not allowed to touch a drawing after it is filed in the Patent Office. No matter how trivial the matter is, whether it be the changing of the inventor's name, or the addition of a reference numeral, it must be made by the Patent Office draftsman. Heretofore, the attorney could, as soon as the change in the drawing was approved, send a draftsman over to the Patent Office and make the correction, and that was the end of it. Under the new order, when the alteration is approved, you must file a request to have the work done by the Patent Office, after which you must wait fully a week before you receive notice of the cost of the correction, and then after paying the amount charged, you wait another week or ten days before the correction is made. In this way, a period varying from ten days to three weeks frequently elapses in making the correction to the drawing.

Apart from the delay, the charges for corrections made by the Patent Office are considerably in excess of those of draftsman on the outside. Then there is always the possibility that in the corrections made by the Patent Office, not under the supervision of the attorney, some error may occur.

Just what brought about this order we have no positive information, but we understand it was due to the fact that there were some attorneys who, under the guise of making corrections to drawings, had sought to introduce new matter, or had in some way gotten into controversies with the Examiners

about corrections, with the result that the Commissioner's attention was called to the matter. This is a rumor which has been current since the issuance of the order.

Because a relatively small number of attorneys were guilty of such practices in correcting drawings, the vast majority of attorneys are made to suffer by delays and extra expense in the correction of drawings. But this is always the way. The laws are made for the few and not for the many. This order, like every law, affects the just as well as the unjust. Those who have never overstepped the rules in correcting drawings must be inconvenienced because of the misconduct of a few attorneys. It seems to us that the Patent Office could have reached the attorneys who had either violated the rules or who were suspected of doing so, by debarring them from the privileges of the draftsman's room in the correction of drawings. In other words punish the guilty ones for their improper conduct, and do not issue an order which affects guilty and innocent alike, and imposes an extra burden on the attorneys and applicants which it is hard to bear in these times. We have seen cases held up from allowance for several weeks simply to go through the form and requirement of having the drawings corrected under the new order. We hope that some other way will be discovered by which the faults in the former practice may be corrected, without making to suffer the great body of attorneys, whose practices are clean and open.

COMMENDATION OF THE PATENT OFFICE.

In another column of the AGE, we take pleasure in printing from the *Bulletin* of the United States Trade-Mark Association, an article commendatory of the present policy of the Patent Office with respect to the registration of trade marks. The writer of the article says:

"In the first place, the policy of the Office is marked by an entire change of attitude toward the applicant for registration of trade mark. It is fair to say that formerly the Office approached the application for registration with the idea of determining, not how the mark could be registered, but upon what grounds it might be rejected."

This seems rather severe criticism, but it is only too true. Hardly a month went by in which the attorneys did not see some new ruling in trade marks which made the practice stricter and debarred certain marks from favorable consideration. For instance, the law as passed by Congress was intended to prohibit the registry of marks which were "merely descriptive," but under rulings of the former Commissioner of Patents, any words or combination of words, which could by any process of reasoning be regarded as remotely descriptive or suggestive, were declared to be not registrable. It is a well known fact that the best trade marks are those which suggest the quality or characteristics of the goods to which the marks are applied. They are the most popu-

lar marks, and there is hardly an industry in which such marks are not prevalent.

The present Commissioner has, however, made it plain that he is opposed to the practice formerly prevailing, and has, in a number of decisions, clearly defined a liberal policy in harmony with the demands and requirements of trade and commerce.

In view of the fact that the trade mark act provides a remedy by cancellation proceedings where a trade mark has been improperly registered, and the further fact that Section 23 of the trade mark act provides, "that nothing in this act shall prevent, lessen, impeach, or avoid any remedy at law or in equity which any party aggrieved by any wrongful use of any trade mark might have had if the provisions of this act had not been passed," it is manifest that a liberal administration of the trade mark law will inflict no injury upon any one. We are satisfied that no action of the present Commissioner is looked upon with more favor by attorneys and manufacturers alike, than the institution of a liberal policy in the administration of the trade mark act of 1905.

Diesel Oil Engine.

The mystery surrounding the death of Dr. Rudolf Diesel has attracted general attention to the oil engine that bears his name. Dr. Diesel disappeared while crossing the English channel, and no one has been able to account for his death. The initial trials which pursue inventors had been overcome in his case, and he was both wealthy and famous. He had received from the late W. T. Stead the title of "the master magician of the world." The merits of his engine were recognized in every civilized country.

The story of the Diesel engine is one of the romances of mechanics.

The idea upon which it was based came to him, as he related himself, while he was a student in the Munich Technical High School listening to a lecture in mechanics. The idea kept its place in his mind until he was 25 years of age, and then he set himself to elaborate and develop it theoretically. He was 35 before he decided that his work was sufficiently advanced to begin practical experiments, and these experiments occupied him for five years and then the first Diesel engine was put on the market.

The first model was a slender upright machine of five horse-power. Today huge engines of six cylinders, each cylinder capable of 2,000 horse-power, can be constructed. From the land the Diesel engine has gone to the sea and it is running today in boats carrying oil, in great ocean steamers, in almost all the submarines in the world and in torpedo boats. The day is not far when the greyhounds of the ocean, showing no funnels, emitting no smoke, carrying their fuel in what are now the waste spaces of the ship, will be crossing the seas, completely replacing the coal-burning craft of today.

The governments of every great maritime power of the world are experimenting with the oil engine, and only a short time ago Great Britain launched her latest dreadnought, the Queen Elizabeth, an oil burner. The oil-

driven battleship, predicted by Dr. Diesel, has come to be. The famous German inventor had been called a dreamer when he spoke of the practically unlimited power that could be obtained; he spoke of 40,000 horsepower on three screws as a near possibility; and engineers throughout the world smiled. Undaunted by adverse criticism he patiently continued his work toward the realization of a future in which, so far as motive power was concerned, oil would dominate the world. Of petrol he held the opinion that there was not a sufficient supply, but of crude oil the possibilities were almost unlimited.

In the future predicted by Dr. Diesel coal would no longer be burned direct in any steam engine on land or on sea, but tar and tar oils would be distilled from it, to be used in the engine he invented; the gas produced would be used in gas engines and metallurgical processes. Every ton of coal in this way would be made to yield far more energy than in the past. Instead of wasting nine tenths of it, fuel would be consumed scientifically and completely.

Those who at the start sneered at the German inventor, and called him a charlatan, have had their laugh, but Dr. Diesel lived it all down and scored an ample revenge. Engineers in Europe and in the United States are competing with one another in the production of his engines, and his name will be forever associated with the oil engines of the world.

It may be several years before the perfect oil locomotive is evolved, but sooner or later it will come, and steam will then have a more formidable rival than electricity. The conversion of every railroad in the world to electrical traction has been discussed with confidence by experts, but that process may be long delayed, and delayed by oil.

The Diesel engine is now recognized the world over as the most perfect type of internal combustion engine in existence, and there can be no doubt that it has at least doubled the resources of the universe as regards the production of motive power. The engine itself departs greatly from other types. In it air alone is drawn into the cylinder on the charging stroke; the air compressed on the return stroke to a very high pressure, generally to more than 400 pounds to the square inch. This compression raises the air to incandescence, and heavy oil is then injected into the incandescent air by a small portion of air compressed to a still higher point. The oil ignites at once as it enters the combustion space, and so a power impulse is obtained, but without explosion. The pressure does not rise above the pressure of the oil injection.

The difference between the ordinary steam engine and the Diesel engine is that in the former the fuel is burned in a furnace apart from the cylinders, whereas the Diesel engine, being of the internal combustion type, consumes its fuel inside the cylinders. It differs from the ordinary automobile motor in the following important features:

1. In the automobile motor a light refined spirit is used, while the Diesel engine can be run on any kind of crude

and liquid fuel, which, of course, is much cheaper than any distilled product.

2. The Diesel engine, unlike the ordinary motor, is a slow running engine.

3. In the automobile motor a mixture of gasoline and air is exploded by an electrical spark, while in the Diesel engine, as already explained, air is compressed in the cylinders until it becomes incandescent; oil is forced into the cylinder by compressed air and it ignites immediately without an explosion.

The Diesel engine therefore embodies two original features: It operates at compression pressure greatly higher than those used in other internal combustion engines and it dispenses with the usual igniting devices by rendering the air charge incandescent by compression.

America's first Diesel motor yacht, the *Idealia*, was put to an official test on the Hudson River, and her performance was remarkable. A start was made from the Columbia Yacht Club at the foot of Eighty-sixth street shortly before 11 o'clock, and the yacht ran to Croton Point and back, a distance of about 60 miles. It took five hours to make the run, an average of about 12 miles an hour. The engineers tested the motors in every way, in starting, stopping and reversing and at high and low speeds.

The motors used 35 gallons of fuel oil, which cost 3½ cents a gallon. Thus the cost of fuel for the entire run was \$1.14, or 1.9 cents a mile. If the yacht had been equipped with a gasoline motor of the same power it would have used gallons of gasoline, which, at the present price of this fuel, would have made the cost \$13.50 for fuel alone for the sixty mile trip.

Lessening Danger from Bichloride.

Medical authorities all over the country have been trying to discover some way in which to halt the steadily increasing number of deaths caused by the carelessness of people who take bichloride of mercury in mistake for harmless medicines. So many cases of mercurial poisoning have been reported in the past three months that the medical world has become alarmed. The bichloride pellets are kept in so many homes and are in such common use that strenuous measures have been advocated to prevent accidental deaths. The bichloride tablet means sure death; and it is the most painful death known to medical science. Once the tablet has passed the throat there is no hope for the victim of carelessness. It has been suggested that the tablets be put up in three-cornered shape to distinguish them. It has also been suggested that bottles containing bichloride be sold only after a bell has been attached to the neck of the bottle to warn those who pick it up.

A Cincinnati chemist seems to have solved the problem by inventing bichloride leaves. These are made in the shape of small blotters. The blotters can be safely handled and carried in the pocket. Each leaf contains seven grains of bichloride of mercury, the full strength of the old tablet form, and each blotter is marked off into sections for clipping. A quarter leaf gives 1.82 grains, and so on in proportion to the strength required. These blotters are placed in a dish of water, just as the old tablets were, and the blotter makes the solution. The blotters are printed in red and each section contains the red

warning that can be read at the bottom of the dish. Another feature of the safety of the blotter is that it cannot be swallowed even if you tried to swallow it. When the blotter, or portion of it, is placed in the mouth the tongue begins to burn and swells so rapidly that nothing can be swallowed. The worst that could happen would be a very sore tongue and mouth. Medical authorities declare the new blotter to be the one solution for safety in corrosive sublimate. Prominent New York medical men will ask that it be adopted in the United States Pharmacopoeia.

The Age of Substitutes.

A German scientific writer, says *Chamber's Journal*, has been drawing attention to extensive dependency of the present era upon substitutes. There is margarine, which is displacing dairy butter, and which is prepared so deftly as to defy detection by all but the analytical expert. Our daily paper is printed upon a substitute, wood pulp being employed instead of rags; and now, owing to the depletion of the forests, there is strenuous search for a substitute for a substitute, as wood pulp is becoming expensive. Cotton has entered so intimately into our complex social and industrial life that it has ceased to be regarded as a substitute, although it is such. We no longer depend upon the silkworm for silk, but obtain it by a mechanical-chemical process from cellulose; while the delicate tints imparted to our wearing and decorative fabrics are obtained by recourse to dyes extracted from tar products instead of the vegetables and organic substances used by ancients. We have synthetic camphor and perfumes, while my lady no longer bedecks herself with rubies and sapphires extracted from the ground or with pearls from the oyster, but with those from the factories. The farmer no longer depends upon the refuse heap of the barnyard to nourish his crops, but buys loads of fertilizers made from nitrogen withdrawn from the air. Real coffee is becoming less and less common on the table, inasmuch as the substitutes are cheaper than, and in this particular instance, it is said, superior to the genuine article, because the deleterious contents present in the natural product, are eliminated. In Germany alone over 200,000 tons of artificial coffee are consumed every year. Champagne is no longer derived entirely from the grapes and district of that name in France; while even cognac comes from other countries than those generally associated with its production. So far as foodstuffs themselves are concerned, the category of substitutes is far more comprehensive and varied than the list of the genuine articles. Jams are mysterious compounds made from vegetables and treated with synthetic products to give them the proper flavors and colors. Milk is being made from the soya bean. The juicy steak or the tender chop is no longer necessarily a prime cut from the animal; vinegar is a concoction of colored acetic acid; edible oils emanate from the greases contained in the heterogeneous refuse filling the dust bin; and even bread has been made from sawdust. The ancients employed stone for building purposes, but the modern man employs brick, cement, sand, lime and concrete, with objects moulded in concrete to take the place of costly stone carvings. Buttons are not made necessarily from bone, but from milk; mother of pearl is no longer derived exclusively from the oyster, but from the factory. Indeed, there is no limit to the ingenuity of the producers of substitutes.

A CLASSIFIED list of Patents issued during the month appears in each issue of the INVENTIVE AGE. This keeps inventors and manufacturers posted in the art in which they are most interested.—We will send, postpaid, to any address, printed copies of any U. S. patent, with specifications and drawings, upon receipt of 10 cents per copy.—Please give correct data in ordering.—Address.

THE INVENTIVE AGE PUBLISHING CO., 918 F St., N. W., Washington, D. C.

LIST OF PATENTS

ISSUED MARCH 10, 1914.

MECHANICAL PATENTS

(Continued from June Number)

Pump, Impeller H. G. Johnston
Pump, Water J. L. Saucherau
Pumping apparatus S. J. Peterson
Punch and cutter for motor-cycle belts,
Combination J. J. Kove
Punches, Making G. Remsnider
Pyrometer, Radiation R. P. Brown
Radial drill W. T. Sears
Radiator, Baker's G. Schmelze
Rail fastener I. E. Hindman
Rail-fastening means W. M. Osborn
Rail tie S. Friedman
Rail tie S. Friedman
Railway angle bar E. H. Field et al.
Railway rail T. H. Elliott
Railway signaling apparatus C. J. Coleman
Railway trains, Electric generating device
for J. Venge
Railways, tramways and the like, Apparatus
for operating the points of H. A. Thomson
Rake R. C. Erwin
Ratchet wrench G. K. Wright
Razor, Safety (2 pats.) M. C. Sharpnack
Razor, safety guard L. W. Farquhar
Razor-stropping machine E. B. Gibford
Reamer, Adjustable W. Pincin
Receptacle, Deposit and collection E. E. Schnelle
Receptacle, Storage and display J. J. Ferrall et al.
Recording instrument R. P. Brown
Reel-braking attachment G. S. Yingling
Relay apparatus A. Orling
Releasable wringer F. H. Bergman
Reminder, Automatic H. E. M. Kensit
Resilient wheel for vehicles G. H. Robinson
Reversed images, Apparatus for reading W. F. Folmer
Road machine O. A. Moody
Rock drill C. H. Locher
Rolling mills, Constructing a transferring
device for rod or wire A. Schopf et al.
Rotary engine L. Holt
Rotary engine C. M. Burton et al.
Rotary expansion engine R. Eisermann et al.
Rule, Tailor's M. Carroll
Saccharometer A. Eppens
Sad iron J. L. Pealk
Safety device, Automatic U. G. Ballinger
Safety pin A. G. Kaufman
Sand guard M. W. Lewis
Sand trap C. P. Ebersole
Sash construction A. H. Sissin
Saw clamp C. S. Mortenson
Saw set and jointer A. Iudgeon
Saw shield, Rip W. Haak
Score board, Electric C. H. Smith
Screen F. T. Wilson
Screen fastening F. P. Calleson
Screen-frame-corner fastener B. C. Rockwell
Screw clamp F. Paulus
Screw holder H. Comb et al.
Sealing machine, Bottle H. T. Snyder
Seaming machine, Double J. J. Griffin et al.
Sectional boiler W. M. Butler
Seed-grading machine E. A. Oliver
Sewing machine feeding mechanism W. A. Mick
Sewing machine, Insole lip (2 pats.) A. E. Johnson
Sewing-machine thread-cutting attachment R. L. Coley
Sewing, Selvage H. A. Blanchard
Shade bracket J. A. Berchold
Shade bracket, Window G. A. Fuhs
Shades, Stop attachment for window H. L. Steidel
Sharpener, Lawn-mower G. L. Knowlton
Shirt G. E. Watts
Shirt band, Reinforced and protective S. P. Simon
Shock absorber W. R. Frommater
Shock-absorbing device C. H. Foster
Shoe shiner's clamp F. L. Campbell
Shotgun-barrel attachment G. Ehrler
Shuttle M. A. Skall
Shuttle F. Renzo
Sifter O. F. Mattingly
Sighting device R. Schumann
Sign or display card F. V. Walker
Signal apparatus for mines A. J. Gurney
Silo hoop H. E. Bodd
Sled D. Y. Halleck
Smoke consumer L. Kidd
Smoke conveyer C. F. Kellems
Sole evening and grading machine E. P. Nichols
Solutions, Manufacturing an elastic foam
from volatile F. Laumann
Spark arrester W. G. Chillis
Speed-controlling device C. Ryden
Speedometer, Centrifugal C. S. Burton
Spool A. Wold
Spray nozzle J. L. Fitts
Spraying device for the hair and scalp H. Sopha
Spring seat F. Jackson
Spring wheel F. Stitzel
Squirrel-cage rotor F. W. Steffner
Stalk cutter and roller, Combined J. J. Nohr
Starching machine E. S. Parker et al.
Steam-condensing apparatus D. B. Morison
Steam engine T. Ganderton
Steam engine, Terminal exhaust J. Davidson
Steel-grit blast machine R. J. Barr

Steel, Refining A. Hethey
Steps, Means for operating sliding W. S. Adams
Sterilizer P. G. Triquet
Stitch controller, Automatic M. Druckerman
Stoker, Mechanical F. C. Fosdick
Stove attachment A. A. Gladden
Stove, Gas H. C. Maul
Stoves, Automatic gas-saving attachment
for gas L. H. Bear
Street-cleaning machine W. H. Dodge
Street sweeper G. MacConchie
Studding fastener A. Steinhauser
Sugar juices, Apparatus for extraction of W. Raabe
Sulphite pulp from resinous woods, Manu-
facture of O. Carr
Superheater apparatus, Locomotive C. D. Young
Support W. A. Powell
Supporting bracket R. W. Monk
Surfacing, Metallic J. F. Wixom
Sweeper, Pneumatic J. G. Stamm
Swinging bracket M. W. Keith
Swinging objects, Supporting means for A. E. Rittenhouse
Switch control S. A. McConnell et al.
Switch-point-controlling device D. Samaja
Switch point, Safety J. B. Cobb, Jr.
Switch rod J. A. McElroy et al.
Switches, Control of Electrically-operated E. R. Carichoff
Tablet holder, Memorial L. Hoffmann
Tag or check A. B. Polyachich
Tanning material O. Schmidt et al.
Tee box L. F. Deming
Telegraph system, Cable I. Kitsee
Telephone-booth door E. W. Walsh
Telephone cut-off R. J. Robison
Telephone exchanges, Call-recording system
for E. E. Clement
Telephone-locking device J. W. Harvey
Telephone systems, Fire-alarm signal box
for automatic J. Erickson
Telephone transmission circuits H. C. Egerton
Telescope for guns, Panoramic sighting H. Korrodi
Tent support H. O. Wellman
Textile-conditioning instrument C. J. Emerson
Tie and soft-collar case G. Wordingham
Tie plates, Manufacturing E. H. Bell
Time recorder G. W. Gibbs
Tire, Pneumatic vehicle J. J. Littenhoefer
Tire, Sectional cushion J. H. and I. E. Bedell
Tire, Sectional resilient C. A. Marien
Tire, Vehicle L. L. Savio et al.
Tires, Rim for pneumatic B. Bradford
Tobacco package E. C. Berriman
Top spinning G. F. Prendergast
Toy C. L. Cruver
Toy (Reissue) J. J. Mahan
Toy gun G. A. M. Liljencrantz
Toy, Musical W. A. Gay
Toy railway system T. C. Spelling
Track cleaner G. W. Green et al.
Tractor A. Frederick
Transfer bin W. W. Woodruff
Translating and registering apparatus E. C. Molina
Transporting materials in bulk, System for T. W. McNeill
Trap B. A. Shaw
Tray E. T. Dawson
Trolley attachment F. A. Schmiedinghoff
Trolley for trackless vehicles W. B. Potter
Trolley-pole controller, Automatic M. B. Jolliffe
Trolley-wire-supporting device C. de Kando
Truck boxes, Side liner for R. Preston
Tungsten manufacture T. W. Frech, Jr.
Turbine, Explosion gas H. Zoelly
Turbine, Low-pressure steam O. Junggren
Turbine, Multistage T. Thomsen
Turbines, Twin-governor mechanism for
mixed pressure O. Junggren
Turbo-generators, Speed-limiting device for F. R. C. Boyd
Turn-table W. A. E. Noble
Twine holder R. S. Dickens
Type-writing machine H. H. Steele
Type-writing machine J. G. H. Burboa
Umbrella covering R. Muller
Undergarment E. F. Wentworth
Valve E. G. Fisher
Valve and valve gear for internal-combus-
tion engines (Reissue) G. H. Mann
Valve, Auxiliary-pressure-control S. G. Neal
Valve casing for elastic-fluid turbines R. H. Neal
Valve, Compensating (5 pats.) S. G. Neal
Valve for controlling air brakes and the
like H. T. Hall
Valve for lighting fixtures V. H. Slinack
Valve for locomotive engines, By-pass H. C. Manchester et al.
Valve for locomotive, Drifting F. J. Cole
Valve for percussive tools G. H. Peck
Valve for water gages, Automatically-clos-
ing E. Rheinbach
Valve gearing for internal-combustion en-
gines H. W. Bolens
Valve, Internal-combustion engine H. E. Bailey et al.
Valve mechanism, Explosive engine U. S. Traub
Valve, Radiator W. W. Brissenden
Valve, Reversing C. P. Byrnes
Valve, Safety T. J. Kyne
Valves for radiators, Thermostatic member
for air F. W. Leuthesser
Vault light E. J. Alfieres
Vehicle body M. A. Buch
Vehicle draft mechanism G. F. Mann
Vehicle pneumatic suspension device J. Williamson
Vehicle seat construction A. H. Adams

Vehicle running gear S. W. and C. V. Tichenor
Vehicle tractor S. F. Douglas
Vehicle wheel E. W. Moon, Sr.
Vehicle wheel A. J. Swing
Vehicles, Means for starting motor road F. R. Simms
Vehicles, Pneumatic support and shock ab-
sorber for S. W. Scott
Vending machine G. F. Conner
Vessel for freight or passengers W. A. Ruppert
Vessels, Method and apparatus for floating
and repairing stranded H. B. Saunders
Veterinary mouth speculum A. Littauer
View-changing device W. C. Upp
Wagons, Load-retaining device for logging
T. Johnston
Water heater A. H. Hard
Water-heating apparatus, Safety attach-
ment for J. F. Cunningham
Water-level gage for pails E. E. Angell
Weighing apparatus W. F. Braun
Well packer H. C. Brewster
Wheel A. J. Swing
Wheel H. Rabba et al.
Wheel clamp F. A. De Walt
Wheel rim, Vehicle R. F. Geide
Wheel rim, Vehicle P. B. Bosworth
Whip holder J. T. McKeg
Whip socket H. H. Randall
Wick H. Ruppel
Winding-machine tension device F. S. Rand
Window platform J. M. Scholey
Window-raising and lowering device G. Carter
Window ventilator N. Friedman
Work holder F. E. Carson
Wringers, Mechanical movement for W. H. Voss
Zinc-lead ores, Treatment of refractory P. C. C. Isherwood

ISSUED MARCH 17, 1914.

MECHANICAL PATENTS.

Advertising and amusement device L. E. Hardin
Advertising device A. T. Fischer
Advertising device E. B. Shanks
Advertising mechanism, Display D. H. Ward
Aerocycle, Centrifugal K. J. McLaughlin
Air-brake appliance, Safety A. A. Carpenter
Air-brake control for railways, Automatic H. J. Warthen
Alarm system, Automatic valve F. V. Sackett
Alumina, Making H. T. Kalmus et al.
Animal trap C. E. Peach
Ash receptacle M. M. De Grody
Asphalt machines, Drier for portable C. E. Guelich
Automobile cranking mechanism, Safety at-
tachment for H. C. Tunis
Automobile jack F. Tirelli
Automobile lock T. S. Keffer
Automobile radiator-cap attachment D. P. Shaner
Automobiles, Bow rest for M. J. Molitor et al.
Axle construction O. Kuepfer
Back-band attachment Z. R. Hall
Bag holder A. Minke
Baler, Cotton W. Cook
Baling apparatus C. L. Walter
Baling press W. L. Greider
Band cutter and feeder O. Packlam
Barn, Cow J. P. Bowditch
Barrel-making machinery, Metallic F. G. Wacker
Base or stand J. A. Firsching
Batteries, Charging switch for storage C. W. Coleman
Battery cell, Electric H. A. Thomas
Beam mold W. M. Venable
Beating and mixing device H. P. Roberts
Beating and mixing machine J. L. Harr
Bed, Folding L. E. Pittoni
Bed, Sofa (2 pats.) G. M. B. Hawley
Beetling machine T. O. Arnfield et al.
Bell, Call H. G. Webster
Bicycle fork W. H. Buster et al.
Binder, Letter C. E. O'Neill
Binder, Temporary G. P. Wigginton
Boat construction H. E. Smith
Boats, Water-intake for power B. Ventrice
Bobbin for use in connection with the
manufacture of artificial silk H. Kuttner
Boiler and other furnace, Marine R. Campbell
Boilers, Protective water-gage glass for J. J. Davis et al.
Bolt-cutting machine A. M. Harrington et al.
Bolt-facing machine A. M. Harrington et al.
Book manipulator, Manifold sales A. R. Turk
Book, Mechanical W. H. Robinson
Books, Leaf and cover holder for R. Krumming
Bookbinding W. B. Wait
Borax and boric acid, Manufacture of E. L. Fleming
Bottle closure E. C. Berners
Bottle hanger E. F. Gingsar
Bottle, Ink J. L. McWhorter
Bottle stopper J. O. Walsh
Bow-making and attaching machine J. A. Breed
Box W. R. Betham
Box opener P. Libonati
Boxes and tubes, Forming R. S. Bolger
Bracelet P. Rittersbacher
Braid holder E. M. Goldsmith
Brake ratchet, Hand R. T. Reese
Brush holder J. C. Lincoln
Bucket, Dredge F. Z. Hunt

Buckle A. H. Rosenthal
Building unit, Reinforced tubular F. J. Schisler
Bulkhead-door apparatus, Hydraulic W. G. Gibbons et al.
Bunsen burner for heating or illuminating G. H. Denny
Burner C. E. Leigh et al.
Button-drilling and shaping tool A. V. Drda
Button tool, Shoe W. A. Bernard
Cabinet J. A. Mark
Cabinet, case, or the like, Convertible J. H. Faulkner
Calibrating device S. D. Sprong
Caliper gage for screw threads F. O. Wells et al.
Can J. K. Billig
Candy-coating machine W. Fritz
Car center plates, Railway J. A. Pilcher
Car-draft and buffing appliance, Railway G. H. Forsyth
Car fender J. P. Geraghty et al.
Car, Railway A. W. Sullivan et al.
Car step G. W. Hersey
Car-uncoupling mechanism A. J. Bazeley
Car-wheel-boring mills, Hub-facing attach-
ment for F. V. McDonnell
Cars, Child's crib or berth attachment for
railway L. W. Geerekey
Cars, Lateral-motion roller-bearing for L. W. Barber et al.
Cars, Roller center bearing for J. C. Barber
Cars, Unit-section sheathing for F. M. Brinkerhoff
Cars, Unit-section side frame for F. M. Brinkerhoff
Carbonator A. Koesche
Carbureter (2 pats.) F. H. Heitger
Carbureter for internal-combustion engines C. J. Megevet et al.
Card, Recording and computing C. M. Wrightson
Carriage, Baby A. J. Adams
Carriage, Collapsible G. E. Cleveland
Carton F. B. Davidson et al.
Casket L. O. Brown
Caster-mounting device C. J. Bell
Chain, Driving A. Brampton et al.
Check rower and automatic corn planter E. W. Owens
Cheese hoop J. W. O'Brien
Churn A. H. Lawrence
Cigar-support attachment E. W. Howe
Cigarette tube and mouthpiece machine J. Gueniffet et al.
Clay cleaner B. Jacquart et al.
Cleaning tool O. Elbe
Cleft, Traction-wheel F. I. and B. P. Remy et al.
Clevis C. A. Gorder
Clock attachment, Alarm E. H. Pratt
Clock, Illuminated A. Morina
Closet M. R. Wilcox
Closure for the openings of containers L. O. Brown et al.
Cloth-pressing machine D. Gessner
Cloth-sponging apparatus B. Lapin
Clutch W. E. Bernard
Coat A. B. Reisman
Coating machine A. S. O'Neil
Cock, Ball W. Hyde et al.
Cock, Gage H. N. Evans, Sr.
Coffee-pot-handle L. Wojidkow
Collapsible box G. L. Morrison et al.
Color lake, Red alumina C. Thun et al.
Color lakes obtained from aminoxanthopur-
purin-sulphonic acids, Red alumina C. Thun et al.
Compositions of matter, Manufacturing L. Lilienfeld
Computing machine A. G. Voss
Concrete construction, Reinforced C. J. Hyer
Concrete-fence-post mold G. H. Fenske
Concrete roadways, pavements, and the
like, Apparatus for laying E. L. Ransome
Concrete structures, Anchoring device for
use in connection with A. P. Lohmann
Concrete structures, Expansion joint for J. F. Le Baron
Concrete-wall mold G. Miller
Confetti bomb H. T. Clark
Conveyer H. T. Clark
Conveyer, Bucket M. A. Kendall
Conveyer transfer H. Hildenbrand
Coop, Poultry W. L. Niemann
Core drum O. Onsrud
Corn gatherer and husker C. Younger
Corn-heading machine, Kafir O. Hayes
Cotton-blocking machine J. Braun
Cotton cleaner C. C. Epps
Cotton gin E. R. Bullock
Cotton picking nozzle or tube E. H. Schofield
Coupling support, Yielding H. F. Woernley
Cover-fastening device C. E. and E. K. Linton
Crane, Portable C. Toepfer
Crate or rack making machine J. W. Schleicher
Cream separators, Liner plate for G. L. Rubert
Crushing and pulverizing machine J. E. Kennedy
Crushing roll T. B. Crowe
Curler and the like, Electric E. Schwartz
Curling-iron heater, Electric C. H. Austin
Curtain hook M. Schnaier
Cushion wheel P. H. Martin
Cut-off, Emergency M. J. McIntyre
Cutter securing and adjusting device, In-
serted G. Gorton
Cutting mechanism, Rotary F. L. Smith et al.
Cycle, Motor C. O. Hedstrom
Cycle oil tank, Motor W. S. Harley
Cycle seat support, Motor W. H. Bradley
David or the like, Ship's H. N. Wylie
Decapitating instrument C. H. Lindstrom
Design composer C. P. Coates

Telegraph systems, Transmitter for printing J. E. Wright
 Telegraphy I. Kitsee
 Telephone system F. R. Parker
 Telephones, Signaling device for party line T. Kernan
 Tent support R. A. McDonald
 Terminal and hook, Detachable strap C. L. Depollier
 Theatrical device for vaudeville acts, Illusory H. J. Moorhouse
 Ticket, Transportation A. C. Adams
 Tile or block, Building G. P. Crumbaugh
 Tin-sheet-doubling machine W. L. Jenkins
 Tire C. E. Bright
 Tire and fastener therefor, Pneumatic J. A. Leach
 Tire construction H. W. Dyer
 Tire cuts, Tool for spreading W. Peterson
 Tire-cutting machine, Rubber A. Greenwell
 Tire tool W. F. Edgington et al.
 Tire upsetter and shrinker J. F. Boyd
 Tire, Vehicle A. W. Savage
 Tire, Vehicle wheel M. Clark
 Tires, Detachable tread for pneumatic L. F. C. Haas
 Tongue switch E. H. Steedman
 Tool holder G. Amborn
 Tool-operating mechanism H. R. Gilson
 Tool, Portable pneumatic E. I. Dodds
 Top-support bracket, Folding R. Huff
 Torpedo, Fiber-case railway signal F. Dutcher
 Torpedo, Paper or fiber railway signal F. Dutcher
 Torpedo, Railway signal F. Dutcher
 Toy, Portable wheeled R. Hollingworth
 Tracking device J. P. Hulder
 Tractor T. V. Buckwalter
 Train stop, Automatic A. R. Heath
 Transmitter R. S. M. Mitchell
 Trap-door attachment E. Eddelman
 Trenching and grading machine J. Wheelwright
 Trolley H. Shaffert
 Trolley track, Elevated V. Wagner
 Truck, Hand F. S. Ricker
 Trunk lock S. Martin
 Trunk structure P. Myrholm
 Tunnel shovel A. W. Robinson
 Turbine (3 pats.) O. Banner
 Turbine S. Otis
 Type-writing machine A. G. F. Kurowski
 Type-writing machine J. C. McLaughlin
 Type-writing machine A. G. F. Kurowski
 Type-writing machine S. D. Busz
 Uniform, Protective W. J. Moran
 Union suit S. Juhn
 Unloading apparatus G. D. Williams
 Vacuum-cleaning apparatus J. T. Atwood
 Valve J. A. Cochran
 Valve W. G. Estep
 Valve L. A. Bellis
 Valve, Automatic safety gas J. M. Wescott et al.
 Valve, Distributing C. E. L. Lipman
 Valve for pressure or vacuum systems, Packless A. A. Britt
 Valve mechanism for pneumatic tools G. A. Oliver
 Valve mechanism, Thermostatic E. Rund
 Valve, Reducing regulating A. W. Cash
 Valve structure for explosive engines E. S. Cameron
 Vegetable washer W. J. Weber
 Vehicle jack H. C. Edwards
 Vehicle, Motor L. M. Buchanan
 Vehicle service indicator J. F. Byrnes
 Vehicle signal J. B. Hawks et al.
 Vehicle washer E. Muller
 Vehicle wheel J. Morat
 Vehicles, Audible alarm for motor W. Sumner
 Vehicles, Number-display plate for S. Gee
 Velocipede, Hobby-horse B. E. Lamkin
 Vending machine, Popcorn G. A. Lightner
 Ventilating apparatus W. D. Scott
 Ventilator J. T. Mercier
 Vessel, Lightering A. Smith
 Vise W. Shannon
 Vulcanization W. G. Hill
 Wall bracket R. E. Coon
 Washboilers, Clothes-draining attachment for A. Searlata
 Washing machine L. Judelson
 Washing machine G. W. Chilen
 Washing machine E. J. Nelson
 Watch-winding mechanism F. L. French
 Water closet C. E. Cole
 Water-elevating apparatus J. A. Staples
 Water heater J. W. Guimont
 Water heater F. Antonuccio
 Water tower, Portable C. W. Fink
 Wave motor A. S. Close
 Wave motor F. D. Prentz
 Well, Locating the place and character of a liquid coming from strata in a T. A. Beecher
 Well, Locating the place of a liquid stratum in a T. A. Beecher
 Wheel W. Hammack et al.
 Wheel construction R. B. Woodward
 Wheel rim, Sectional S. M. Beery
 Wig or headpiece for dolls and the like and making the same A. H. Butler
 Window W. Hook
 Window-operating mechanism, Casement J. N. Watson
 Zenith, Artificial F. H. Lindman
 Zinc furnace with integral condenser, Electric (2 pats.) J. Thomson

ISSUED MARCH 24, 1914.

MECHANICAL PATENTS.

Adjustable frame A. S. and R. Reid
 Advertising device J. Simpson
 Air-brake A. J. Wisner
 Air-compressor C. H. Erickson
 Airship D. F. Felten
 Ammonium sulfate, Producing A. Mittasch et al.
 Anchor, Ground A. T. Ballenger

Ankle-joint for artificial limbs J. F. Rowley
 Ankle support and protector H. J. Collis
 Annealing-furnace W. P. Bettendorf
 Anode and anode-hook H. R. Boissier
 Antiskidding device for automobiles L. M. Keech
 Armoring-machine C. T. Pratt
 Atomizer G. J. Kelley
 Auto-lift E. H. Riopel
 Autographic register W. N. Boller
 Automobile-body A. P. Brush
 Automobile-render C. Hammarstrom
 Automobile-puller J. J. Fisher
 Automobile speed-indicator C. Gore
 Automobiles, Folding storm-door curtain for E. F. Neal
 Automobiles, Transmission-gearing for D. M. Hunt
 Bag-tie F. Carlson
 Bags or pockets, Apparatus for making W. E. Molins
 Baling-presses, Bale-tying mechanism for E. Cunnutt
 Banjo N. J. Nelson
 Barrel holder, Ash M. Nagle
 Basting-pin H. Roucher
 Bead-rolling machine for plastic articles J. W. Denmead
 Bearing A. E. Dotta
 Bed-pan A. B. Knowlton
 Binder or loose-sheet holder, Temporary R. Krumming
 Binder, Temporary C. Dom
 Block-signal system L. A. Hawkins
 Blower, Steam or air E. Renard
 Boards, Machine for building up E. J. Bell
 Boat, Life L. O. Larsen
 Boat, Motor R. Kusamura
 Boat raising, lowering and storing apparatus, Ship's W. E. Armstrong
 Bobbin-cleaner W. Lonzo
 Boiler setting, Steam M. W. Sewall
 Book W. H. Radford
 Bottle, Non-refillable W. R. Whitwell et al.
 Bottles in transport-cases, Machine for placing E. Jagenberg
 Bottles, Supporting-bracket for dispensing J. C. McCain
 Bowling-alley P. S. Knapp
 Brake-operating means M. S. Clark
 Brake-shoe A. L. Streeter
 Brake system, Electropneumatic J. S. Doyle
 Breathing device G. A. Morgan
 Brush W. MacKelvey
 Brush, Tooth M. E. Gates
 Brush, Tooth C. E. Carroll
 Brush, Tooth G. H. Erickson
 Bucket, Automatic dump E. M. Day et al.
 Bumping-post L. M. Lawrence
 Burglar-alarm R. A. Philp
 Burglar-proof screen A. R. Derge
 Bushing E. J. Bell et al.
 Cabbage-trimmer J. M. Gregory
 Cabinet W. S. Smith
 Cable-forming machine E. Wroughton
 Cable-reeling mechanism F. C. Coese
 Can-making machine, Mechanism for feeding can-bodies and can ends to a L. C. Krummel
 Can with self-closing lid L. Schott
 Candle-holder G. Kowalsky
 Candy-making machine P. H. Schlueter
 Caoutchouc, Manufacturing synthetic C. K. F. L. Gross
 Car-coupling H. G. Dodds
 Car, Dump R. C. Crawford
 Car-loading apparatus, Box C. Berghoefer
 Car underframe, Railway C. F. Frede
 Car-wheel guard W. F. West
 Cars and similar structures, Water-tight, sanitary floor for J. E. Meek
 Cars, Card for railway D. S. McEwing
 Cars, Means for cushioning the bodies of railway W. P. Bettendorf
 Carureter J. A. Davis
 Carriage, Collapsible (2 pats.) C. S. Spofford et al.
 Carrier J. F. Walker
 Cashier, Automatic P. Greindl
 Cattle-guard D. Grant
 Chain-link H. Taylor
 Chain, Skid J. A. McDonald
 Cheese-stand C. W. Kibbey
 Cherry-stoner M. A. Rollman
 Christmas-tree support B. K. Lyman
 Chronometer-escapement W. E. Walker
 Churn J. W. Delzell
 Chute, Stock W. Reid
 Cigar-lighter G. F. Paldani
 Cigarette-case M. L. Robbins
 Cigarette-machine E. D. Smith
 Circles, Instrument for laying out arcs of C. W. Roehrig
 Circuit-breaker, Vibrating P. M. Rainey
 Clipper G. Miller
 Clock-bank E. C. Brockway
 Clock, Electric J. M. Moore
 Closet H. M. Keith
 Clothes-drier J. L. Clarke
 Clothes-drying rack R. G. Boehme
 Clothes-lines, Device for spacing the upper and lower laps of endless C. J. Steele
 Clothes-pin S. J. Wilkes
 Clutch, Friction J. Marvel
 Clutch mechanism J. Lauth
 Clutch, Multiple-cone J. B. Knickerbocker
 Coin-controlled mechanism G. F. W. Schultze
 Collar E. J. Quigley
 Combustion-chambers, Controller for W. R. Mills
 Combustion device C. E. Brown
 Concentrator E. Pierce et al.
 Concrete building construction J. A. Kuivala
 Concrete building constructions, Socket for J. A. Sanquist
 Concrete burial-vault N. L. Brown
 Concrete columns, Reinforcement system for R. B. Hartman
 Concrete-mixer E. F. Wege
 Converters, Apparatus for operating vapor P. C. Hewitt
 Conveyor M. Slovsky et al.
 Cookers and the like, Gate-operating mechanism for meal A. W. French
 Cooking apparatus, Electric J. Lawrence
 Coop, Knockdown F. W. Romans
 Corn-popper C. Cretors

Corn-cutting machines, Corn-forwarding device for green- J. M. C. Jones
 Corn-topper E. E. Cannon
 Corset L. J. Mead
 Corset and abdominal supporter, Combined M. Goodside
 Cotton-chopper J. S. Vaughan
 Cotton-loader H. M. Finch
 Cotton-picker E. S. Jones
 Cotton-picker T. E. Straus et al.
 Cotton-presses, Trumper for, Reissue N. W. L. Brown
 Cotton-sack W. T. Stout
 Counting-machine W. Fuhr
 Coupling W. La Fary
 Crochet-hook S. S. Senechaugh
 Crutch S. H. Norton
 Crutches, Calk attachment for S. H. Appelman
 Cultivator H. Gaddie
 Cultivator E. Lavoie
 Cultivator attachment R. Thompson et al.
 Cuspidor G. Woodworth
 Cycles, Auxiliary-wheel mechanism for motor- D. J. Johnston
 Dental bridges, Removable saddle for fixed A. L. Van Arsdall
 Derailer, Pneumatic J. J. McIntyre
 Derrick, Metallic P. Yorke
 Dish-washing machine H. T. Goss et al.
 Disinfectant-distributor W. L. Miller
 Display-hanger T. H. Blacknall
 Display-rack for spools, &c. H. H. Belding et al.
 Door-check C. T. Rogers
 Dose-indicator I. P. Berthrong
 Draw-string B. Clark
 Drawer-guide E. F. Pooley
 Drawing-roll for drawing and evening machines P. McHale
 Drawing sharp edges on metallic bodies, Device for C. O. Halling
 Drying apparatus, Fabric A. T. Metcalf et al.
 Drying by compressed air, Apparatus for W. E. Hall
 Drving-machine B. B. Farnham
 Drill R. E. Vandergriff
 Drill-bit-locking means D. S. Waugh
 Drinking-fountain E. L. Pollard
 Drum damper, rare R. Hope-Jones
 Duplicating-machine for making perforated music-sheets, &c. E. W. Myers
 Dyeing-beam F. M. Morton
 Dyestuff, Disazo A. L. Laska et al.
 Egg-storing apparatus O. Dreher
 Egg-tester O. J. Kogel et al.
 Electric ignition system T. Hubert et al.
 Electric machines, Means for assembling cores for dynamo- E. R. Knight
 Electric machines, System of regulation for dynamo- V. G. Apple
 Electric switch T. E. Murray
 Electric terminals, Binding-post for A. B. Simpson
 Electric transmission of energy I. Kitsee
 Electric-wire connector A. B. Simpson
 Electrical apparatus, Heat-dissipating means for (reissue) H. A. Rhodes
 Electrical conductor P. P. Nungesser
 Electrical distribution system P. H. Thomas
 Electrical distribution systems, Protection of feeders of P. V. Hunter
 Electrical purposes and producing same, Coil for E. A. De Wolf
 Electrical socket and receptacle L. Kellner
 Electrically-controlled elevator T. G. Mason
 Electrode for gas or vapor electric apparatus M. von Recklinghausen
 Electroplating apparatus G. A. Lutz
 Elevators and hoisting-cages, Safety brake mechanism for J. Ceserani
 Elevators, Automatic stop or safety device for J. F. King et al.
 Embroidering-machine, Jacquard R. Zahn
 Engines, Means for controlling the supply of motive fluid to marine A. Kerr
 Engines, Transmission and reversing gear for L. J. Houpt
 Envelop H. Wroeger
 Envelop J. P. Anderson
 Envelop W. H. Beecher
 Envelop-machine F. L. McNeill
 Envelop, Return W. Thayer
 Fraser F. H. Baldwin
 Exhaust-head C. B. Klingemann et al.
 Expansion-bolt A. C. Barrett
 Expression-regulator J. Saupere
 Eyeglass-cleaner K. M. Serres
 Fabric, Making metal J. F. Golding
 Fastener E. M. Dougherty
 Fastener R. Jenks
 Fastener-inserting machine G. A. and S. A. Dobyne
 Fastener-inserting machines, Throat for S. A. Dobyne
 Fastener, Separable S. A. Kirkness
 Faucet J. Hetherington
 Faucet, Measuring W. H. Holmes
 Feed-water heater P. Mejani
 Feeding-trough J. W. Jewell
 Fence stretcher, Wire H. F. Hansen et al.
 Fertilizer-distributing attachment P. Reading
 Filter-plate P. Porges
 Fire-pot C. F. Coda
 Firearm M. L. Castle
 Fish molds, Shaper for cuttle H. Orkin
 Flat-ware blanks, Manufacture of A. Wilzin
 Flour, Refining H. Buckley
 Folding table S. W. Baldwin
 Food products, Composition for producing lactic J. D. Frederiksen
 Foot-rest, Adjustable F. A. Carr
 Fork C. A. Fleming
 Fourdrinier machine A. J. Davies
 Fruit-drier W. Reid
 Fruit-picker P. A. Ulrich
 Funnel C. Badig et al.
 Furnace W. E. Adams
 Furnace-door-operating device G. H. Gregory
 Furnace for treating ore and the like K. J. Beskow et al.
 Fuse, Electric ignition K. Schaffler, rekte Glossl

Garment G. Gelormini
 Gas-burner L. Stockstrom et al.
 Gas-burner valve E. S. Allen
 Gas-generating apparatus D. D. Barnum et al.
 Gas generator, Acetylene- A. L. Leach
 Gas generator and burner for hydrocarbon oils H. A. Johnson
 Gas-light, Inverted J. H. Maertin
 Gas-machines, Oil-pumping apparatus for M. Laux
 Gas-meter W. H. Knight
 Gas-producer hopper W. A. Jones
 Gases, Separating mixtures of A. Sinding-Larsen
 Gases to the action of liquids, Apparatus for subjecting F. H. Wagner
 Gaseous injections, Apparatus for M. Braunberger
 Gearing, Change-speed C. C. Earnist
 Glass, Manufacturing raw plate M. Bicheroux
 Glazier's tool G. L. Menke
 Golf-club J. Millar
 Golf-stroke teacher W. H. Brown
 Governor mechanism N. Baldwin
 Governor, Vacuum F. W. Van Ness
 Grease-cup W. D. Banes
 Grease-cup closure W. D. Banes
 Grinding-machine O. S. Walker
 Grinding stone, Pulp J. J. Case
 Grip-socket H. B. Young
 Gum-massaging apparatus C. P. Taaill
 Gun, Semi-automatic F. Lender
 Gun with fluid-accumulator, Semi-automatic F. Lender
 Gymnastic apparatus C. G. Rosenberger
 Hair-erimper P. Heim
 Hair-cutting gage S. Mickelson
 Name-fastener and reinforcement for horse-collars J. C. Weinman
 Hammer, Electric B. Valiquet
 Hammers, Pulling attachment for steam- T. Hill
 Hammock, Couch W. P. Hammond et al.
 Harrow, Revolving J. M. Bassler
 Harrow, Zigzag F. Hanson
 Harvester, Beet A. Morison
 Harvester, Crauberry- G. F. Keene
 Hay-fork B. W. Weber
 Hay rake and stacker M. R. Jenkins
 Headlight J. Smith et al.
 Headlight for motor-vehicles, Dirigible N. Miseta
 Heaters, Liquid-evaporator for F. E. Buddington
 Heddle-frame (2 pats.) J. Kaufmann
 Heel burnishing or finishing wheel C. A. Matson
 Heel for boots or shoes, Cushion- O. W. Tule
 Hides before tanning, Treating C. C. Moore et al.
 Hinge T. Mitchell
 Hoe, Combination E. R. Godward
 Hoisting mechanism, Lever-controlled device for J. B. Phillips
 Hook and eye E. J. Huges, Jr.
 Horse-detacher O. E. Albright
 Hose-rack W. T. Oliver
 Hosiery-form J. Rogginger
 Hub-plate M. Christman
 Hydrant J. G. Gauntt
 Hydraulic transmission L. E. Hopkins
 Hydrocarbons, Producing unsaturated terpene E. Bergs
 Hydrodynamic balance, Reissue E. F. Fisher
 Hydrogen or hydrogen-containing gas mixtures to reaction and apparatus therefor, Process of bringing M. Pier
 Ignition-plug A. R. Bullock
 Inhaler C. W. Levalley
 Inhalers, Bottle-holder for chloroform- L. Drosin
 Inkstand A. A. Traugott
 Interlining fabric and making same, Woven G. S. Cox
 Internal-combustion engine L. E. Viard
 Internal-combustion engine C. Y. Knight
 Internal-combustion engine L. M. Foster
 Internal-combustion engine S. W. Carlton
 Internal-combustion engine H. L. Reese et al.
 Internal-combustion engine C. De Lukaesevies
 Iron and steel articles, Case-hardening C. Burian
 Ironing-table F. J. Muldon
 Jet apparatus W. Dobson
 Jigging-machine O. Bohm et al.
 Jolt-ramming mechanism E. H. Mumford
 Knife-blade-swaging machine T. R. Moore
 Label for hair switches M. Muller
 Lace holder, Shoe N. M. De Lany
 Lacing hook or stud E. H. Robertson
 Ladder, Folding step J. Dybeck
 Ladders from slipping, Device for preventing V. Takaeh
 Lamp W. E. Burcky
 Lamp, Automobile signal- G. Holinka
 Lamp-burner, Safety C. B. J. Witmond
 Lamp, Electric E. A. Hawthorne
 Lamp-fixture H. D. McFaddin
 Lamp, Gas or vapor electric R. Kuch
 Lamp-mounting (3 pats.) E. A. Hawthorne
 Lamp socket, Electric R. R. Melvaine
 Lantern C. Sarkadi
 Latch J. Shand
 Latch apparatus, Detachable L. L. Longshore
 Latch, Gate T. J. Browning
 Latch lift, Gate M. Sarvalla et al.
 Lathe, Ax-handle L. Johnson
 Leather-skiving machine A. M. Alexander
 Leather-working machine F. Wayland
 Leather-working machine F. H. Teel
 Letter-box, House A. J. Linek
 Letter for advertising-boards, skylights, &c., Multiple C. B. Herrmann
 Light, Electrical production of P. C. Hewitt
 Lighting apparatus E. A. Hawthorne
 Lithographic stones, zinc, &c., Machine for cleaning and graining J. Rouillet
 Limb, Artificial C. V. Blon
 Liquid-fuel burner J. C. Simmons
 Liquids by means of the ultra-violet rays, Apparatus for sterilizing T. Nogier

Pump, Spraying- S. Smith
Pumps, Attachment for wind-driven- J. F. Metzger
Radiator-shield H. Romunder
Rail-anchor J. M. Scott
Rail construction M. R. Brown
Rail-joint R. J. Smith
Rail-joint A. Van Benning et al.
Rail-joint C. C. Acker
Rail-joint (reissue) J. M. Johnson
Railway accidents, Apparatus for prevent-
ing H. L. Lockart
Railway-rail J. S. Fox
Railway signaling apparatus B. F. Wooding
Railway-tie D. S. Graeff
Railway-tie, Metallic E. C. Shaw
Razor J. Kaufman
Razor-blade stropping and honing machine
 E. Jacobs
Razor, Safety- R. Rabas
Razor-stroppler G. F. Keene
Reaper F. A. Ryther
Receptacle, Knockdown D. E. Garret
Refrigerator P. Fleuri
Refrigerator J. Schulde et al.
Refrigerator attachment F. P. and H. D. Layman
Register-leaf construction, Credit- F. J. Petersou
Resilient wheel J. H. Brizeudin
Resilient wheel (4 pats.) W. F. Doll
Retaining device A. Q. Walsh
Roof-edging R. M. Hopkins
Roofing, Sheet-metal E. W. Edwards
Rotary engine H. Harford
Rudder and fender, Combined M. Vassalakis
Rule, Underscoring J. T. Barton
Ruler attachment V. A. Russo
Running-board E. Gruber
Salt, Cleaning J. Stauffer
Salt, Transporting J. Stauffer
Sarcophagus C. L. Van Nostrand
Sash-balance J. E. Richardsou
Saw, Butcher's A. Tilden
Saw-filing machine J. A. Sevey
Saw-guard L. N. Nelson
Saw-jointer W. E. Gibbs
Scaffold, Hanging G. Johnson
Scale V. O. Klingler
Scenery-handling apparatus S. G. Bailey
Scraping-machine A. H. Fargo
Screw and bolt lock I. Dimock
Screw-plate C. C. Rnsell
Seed-cleaner and corn-grader J. C. Benson
Self-basting roaster W. A. Stork
Sewed articles, Circular seam for M. Drnckerman
Sewing-machine E. E. Winkley
Sewing-machine finger-guard F. D. Martin
Sewing-machine quilting-frame W. B. Click
Sewing-machine, Revolving-hook R. K. Hohmann
Shade-roller A. McLean
Shade-roller tensioning device J. A. Wooton
Shaft attachment J. H. Smith
Shafts, Vehicle- H. A. Foster et al.
Shaving-cream, Producing K. Fischmann
Sheet-metal-expanding machine F. C. Arey
Shock-absorber for valves E. A. Perkins
Shoe G. H. Ricke
Shoe-bow G. Sachse
Shooting-gallery E. Howarth
Sign, Electric G. T. Kelly
Signal system, Normal-danger- L. A. Hawkins
Signaling device S. Chase
Signaling system F. B. Adam et al.
Signaling, Transmitting apparatus for elec-
tric P. O. Pederson
Skee, Water- V. Voller
Slitting and scoring machine J. T. Ferres
Smoke-consumer J. A. Packard
Sodium and potassium salts, Separating H. P. Bassett
Sound-box T. H. Macdonald
Sound-box diaphragm J. C. English
Spark-arrester W. L. Bnck
Spark-plug and air-compressor D. B. Combs
Speedometer W. O. Nelson
Speedometer J. Whitecomb
Spinning-machine doffing mechanism T. O. Aked
Spinning machines, Building-motion for
ring- J. Poisson
Spool G. W. Adams
Spring-board M. W. Bush
Spring-testing means, Vehicle E. J. Harvey
Square H. C. Hart
Stamp, Dating- H. M. G. Pinkerton
Stamp, Hand- L. K. Scotford
Starting device C. G. Tate
Steam-condensing plant working under vac-
uum D. B. Morison
Steam from steam-turbines, Extracting F. E. Norton
Steel and iron in their manufacture, Treat-
ing C. R. Gostling
Steering mechanism C. E. Brooks
Stereotype-matrices, Locking device for A. Egli
Stile and rail rabbeter C. E. Evans
Stoker, Chain-grate J. H. Rosenthal et al.
Stoker, Mechanical F. M. Underwood
Stop mechanism B. F. Mayo
Stopper-extractor E. J. Doheny
Strike-plate J. R. Fletcher
Stropping-machine I. W. Irving
Structures, Hanging for flexible S. S. Lake
Subsoiler J. M. Aryldott
Sugars, Prodncing fermentable F. E. Gallagher
Suit-box J. B. Moses
Sulfites or bisulfites, Manufacture of R. Friedrich et al.
Sulfites or bisulfites of homogeneous chem-
ical constitution, Manufacture of solid R. Friedrich et al.
Switch mechanism, Electrical R. W. Pachaly
Target for pleasure-shooting, Impact-illu-
minated W. H. Bnell
Teeth, Composition of matter to be used
for the manufacture of plates for arti-
ficial R. H. Newton
Telegraph system, Printing- F. H. McBerty et al.

- F. A. Bruckman
Connecting-rod G. T. Strite
Cooker, Combination C. Davenport
Cooking device, Electric W. Stanley
Cooking utensil J. S. Knowles
Cooking utensil L. Wojtkow
Cord or rope-making device M. M. Lamy
Core compound H. K. Moore
Corn-heading knife M. D. and L. Owen
Corn-knife J. P. Hylan
Cot, Folding A. R. Barnes
Cotton-squares, Machine for catching boll-weevil R. E. Shaw
Counter W. Schurmann
Counter-stiffener G. L. Preble
Crucible-furnace, Electric D. F. Calhane
Crushing-mill J. F. O'Neil
Cultivator J. P. Pate
Cultivator, Hand- J. B. Soward
Cultivators and the like, Implement-adjusting device for R. J. Manderfield
Cultivators, Weed-cutting attachment for C. Armstrong
Currycomb M. E. Chilson
Curtain and pole fixture E. H. Powell
Curtain-fixture J. Becker
Curtain-pole-concealing suspension means for curtains and similar draperies E. B. Ashmore
Cushion-spring G. J. Gensbach
Cuspidor P. Turnbull
Cutting-machine G. Nast
Cutting mechanism C. Holly
Cycle saddle, Motor- A. L. Brett et al.
Dental-engine hand-pieces, Moistening device for D. W. McLean
Dental instrument B. T. Andren
Deodorizing and disinfecting device C. Hammesfahr
Diaphragms, Method and means for forming G. C. Die
Dieing-machine J. H. Reed
Differential mechanism F. M. Lewis
Dispenser, Cup- L. S. Platau
Dispensing apparatus F. T. Wiechert
Dolls, Articulation of H. W. Meier
Door-closer, Automatic E. W. Grogan
Door-fastener F. Schmidgall
Door-holder W. F. Schmunk
Door, Sheet-metal E. J. Zahner
Dough-raising machine F. G. Bird
Dough-transferring device C. Freihofer
Draft appliance for farming implements A. Otto, Jr.
Draft device C. A. Myers
Draft-equalizer J. F. Jennings
Drafting appliance W. Jacobsen
Drawing-support W. Allen
Drill-press M. Merliss
Drilling-machine, Hydraulic S. C. Monberg
Drilling-rigs, Strain-indicator support for J. H. Howie
Drilling-rigs, Filtering J. H. Howie
Easel, Adjustable photobromid J. H. Howie
Elevator J. H. Howie
Elevator, Grain- J. V. Cizek
Emblem-ring J. A. Schrink
Enamel H. G. Essayan
End-matcher (2 pats.) W. S. Sherman
Engine and transmission unit E. A. Nelson
Engine-starter C. M. Leech
Engines, Attachment for internal-combustion W. W. Dodge
Engines, Electrical ignition apparatus for internal-combustion A. Zahringer
Engines, Fuel-feeding means for internal-combustion H. E. Kempton
Envelope-making machine A. Colombo et al.
Evaporator F. Schulz
Evener, Four-horse R. I. Smith
Explosive-engine C. C. Rogers
Extensible table C. H. Harris
Extracting apparatus J. H. Castana
Eyeglass-mounting J. Friedlander
Fall-block J. C. Fox
Fan-wheel C. T. Porter
Fare-register E. H. Bridenbaugh
Faucet and drinking-fountain G. M. Westerberg
Fellies, Machine for removing cleats from C. B. Hayes
Fence-stretcher M. Rossmann
Fencing material, Package of T. G. Ryan
Ferry-landing mechanism H. T. Goss
File, Letter- P. Ebner
Filing device for loose leaves or similar bodies J. Tragardh
Film-developing tank W. T. Miller
Filter, Air- P. E. Nolden
Finger attachment J. K. Potat
Fire-escape J. C. Brown
Firearm, Automatic P. Mauser
Firearm, Take-down J. H. Wheeler et al.
Fishing-rod support T. R. L. Ebnr
Flexible coupling J. G. Callan
Fluorspar, Purifying E. Bidtel
Flushing mechanism N. G. Goreau et al.
Fly-trap G. O. Walters
Fly-trap C. F. Terhune
Flying-machine J. W. Wilson
Flying-machine W. P. Anderson
Foldable chair L. M. Clouse
Folding gate I. E. Hall
Folding-machine C. N. Batt
Folding-machine L. Muth et al.
Foot-operated elevator R. Laborda
Friction-top can J. M. Young
Furnaces, Ash-sifter for E. O. Loeber
Furnaces, Lining B. E. Eldred
Gambrel W. E. Van Der Veeu
Game apparatus H. W. Falke
Game-board W. A. Bailey
Gas-burner G. B. Killam
Gas-burner W. W. Ogden
Gas cut-off, Safety R. A. Waxler
Gas-engine (2 pats.) C. A. Lundy
Gas-meter C. E. Hibberd
Gaseous fuel heater R. A. Frisbie
Gear-hobbing machine F. O. Farwell
Gearing, Change-speed W. S. Austin
Gearing, Power-transmission F. W. Vodoz
Gearing, Rotating A. G. Tomsick
Golf strokes, Device for practicing E. C. Thompson et al.
Grain-shocker G. E. Campbell
Graphite conductor W. C. Arsem
Grass hook H. Volekmann
Grating A. Darroch
Grinder, Tire- J. Dailey et al.
Grinding and polishing machine N. J. Downey et al.
Grinding tool, Valve- H. R. Parsons
Gripping and lifting tool G. Lewis
Grounding device G. A. Bishton
Guns, Cartridge feed mechanism of automatic A. T. Dawson et al.
Guns, Firing mechanism of breech-loading (2 pats.) A. T. Dawson et al.
Hack-saw guide R. C. Berry
Hame C. L. Wiedrich
Hammers, Lifting board for drop G. H. Merrill
Hammer or like support I. E. Palmer
Hanger C. Mather
Harrow-tooth T. J. Gibbons
Harvester attachment V. L. Haynes
Harvester, Corn A. Kepler
Harvesters, Heading attachment for Kafir-corn J. Stewart
Hat-holder J. R. Corthell
Hay-fork F. H. Barz
Hay-press J. W. Burkett
Headlight mechanism C. S. Parcells
Heating and ventilating device, Electric J. F. Cook
Heating device, Electric M. H. Schoenberg
Heel-attaching machine W. R. Barclay et al.
Heterophoria, Instrument for detecting C. H. Pixley
Hinge F. F. Miller
Hinge J. R. Welch
Hoisting machine A. J. Vetric
Horseshoe M. J. Griffin
Hose attaching device C. Elkin
Hose coupling F. E. Paradis
Hose-supporter R. E. Dodge
Hot-air motor E. A. Wullenweber
Hydrocarbon burner F. B. Leonard
I-beam switch, Electrically-operated S. H. Libby
Ice-box drip pans, Alarm device for H. Silver
Ice-cream dispenser C. Deering, Jr.
Ice-making apparatus A. Faget
Ice-sawing machine C. Y. Akas
Incinerator W. D. Ryan
Incinerator for garbage, excrement, &c. A. L. Schellhammer
Incubation S. A. Merkle
Induction coil A. Plecher
Induction motor C. L. Spinney
Insulating composition F. M. Locke
Insulating composition L. E. Barringer
Insulating material L. E. Barringer
Insulator L. E. Barringer
Insulator F. M. Locke
Internal combustion engine W. Campbell
Internal combustion engine W. H. Pratt
Internal combustion engine S. S. Sutton
Jacquard machine, Electric K. Fanta
Key-ring lock D. C. En Earl
Knockdown carrier for fragile receptacles A. C. Benmers
Labeling machine G. L. Bender et al.
Labeling machine F. H. Knapp
Labeling machine, Box- M. J. Milmoie
Lacing hook-setting machines, Top gage for A. R. Havener
Ladder F. A. Creed
Lamp, Acetylene- B. B. Stone
Lamp, Arc J. T. H. Dempster
Lamp, Electric (2 pats.) C. P. Steinmetz
Lamp holders, Actuating means for swivel C. N. Sowden
Lamp stand, Adjustable E. Seidel
Lamps, Connection for starting metallic vapor F. Girard
Lamps, Igniting device for miners A. Pasierbski
Lamps, Method of and means for determining the ratings of incandescent W. G. Houskeeper et al.
Last protection W. A. Krentler
Latch, Door F. H. Erickson
Lathe tool holder B. I. Botts
Laundry-dumping box J. F. Broderick
Ledger C. B. Sippel
Lever and link, Adjustable G. J. Henry, Jr.
Life-saving apparatus G. F. Birmingham
Lifting device R. D. Gardner
Lifting jacks, Double-acting ratchet handle for A. Dudgeon
Lighter, Portable G. Schleicher
Lighter, Pyrophorous O. Schlick
Linotype mold A. A. Bailey, Jr.
Liquid dispensing device J. Desmond
Liquid meter W. I. Staaf et al.
Locking clamp for gates and the like I. L. Laudis
Locomotives, Connecting rod for H. T. Crook
Locomotives, Sprinkler device for J. Chidley
Log lifting and hauling machine H. L. Bentou
Loom shuttle (2 pats.) E. S. Stimpson
Loom shuttle-feeler mechanism H. A. Davis
Lubricating device I. H. Sisson
Lubricating fluid-driven tools, Means for F. Spitznas
Machine tool-driving mechanism A. J. Gifford
Manure from tanned leather shavings or cuttings, Making A. Moise
Massage vibrator W. N. Motter
Match-making machines, Dipping apparatus for V. Czerweny
Metal founding C. L. Spinney
Metals, Refining A. Patton
Metallic frame, Adjustable L. Bland
Metallic tie and rail-fastener R. W. Oswald
Metatarsal adjuster J. Harris
Milling machine V. Sobush
Mine-washing apparatus C. H. Boardman
Mitten, Bath T. J. Diamond
Mold J. Thibadeau
Monocle and the like H. T. Louch
Mop, Dust F. and G. F. Pirrung
Motor G. and K. Hogg
Motor controller W. B. Lucas
Music chart R. Somers
Musical chart J. W. Scroggs
Musical instruments, Winding and unwinding device for automatic F. W. Hempelmanu
Nailing machine H. W. Morgan
Name plate W. J. Hines
Nickel from its ores, Recovery of H. L. Sulmau et al.
Nut-lock H. Carter
Nut-lock J. H. Mitchell
Nut-lock C. C. Rutter
Nut-lock G. W. Pybus
Nuts, Machine for making castellated F. E. Brightman
Obstetrical instrument W. A. Hill
Oil burners, Flame spreader for G. W. Knapp
Oil-can, safety A. L. Hansen
Oil-switch E. M. Hewlett
Orchard heater E. G. Button et al.
Oven for ice cream cone moulding devices F. A. Bruckman
Overalls S. Kirshen
Packaging machine O. A. Hanford
Packaging receptacles, Machine for transferring A. D. Holt
Paper-making machines, Rotary suction roll or vacuum couch roll for use in R. Marx
Paper vessel, Grease-proof H. L. G. Moore
Pea-cleaner E. Reynolds
Peach-stoning machine G. W. Allen
Penholder H. G. Marbrnger
Percolator A. J. Morlock
Piano-action E. A. Mayor
Piano-playing attachments, Automatic speed controller and stop mechanism for E. T. Turney
Picture booths, Protective apparatus for moving W. J. Kerr
Picture machines, Projecting apparatus for moving G. E. Ripley et al.
Picture machines, Shutter for motion A. D. Standeford
Pictures, Apparatus for taking or reproducing animated L. H. Huet
Pipe fitting, Adjustable M. J. O'Donnell
Planter attachment, Corn R. R. Dewey
Planter, Corn I. W. Douglas
Planter marker mechanism J. B. Bartholomev
Plow R. J. Altgelt et al.
Plow W. L. Faulkner
Plow, Gang C. W. Michael
Plow, Motor G. Hintze et al.
Plow, Tractor R. J. Wilson
Plug-socket L. J. Castonguay
Plug-switch T. E. Gaubrell
Plunge-bath J. F. Booraem et al.
Pocket B. Greenwood
Poison-indicator R. W. Bugbee
Poke, Animal W. B. Sloan
Polishing machine (reissue) C. W. Beam
Post E. Frantz
Powder-packaging machine I. Z. Garfield et al.
Power-transmitting mechanism D. E. Morris
Preserve boxes and the like, Cover or lid for use in connection with air-proof R. Jahn
Press feeder, Automatic J. Lynch
Priming cup and compression relief cock Combined F. J. Coleman
Printing and registering apparatus, Ticket H. Friedleiu
Printing machine, Rotary C. Herrmann
Printing meter J. E. and F. L. Burch
Printing meter, Means for P. S. A. Marino
Printing stand N. De Clark
Projectile C. B. Fox
Projecting device W. Webber
Proportional indicating device W. M. Trick
Pulley J. C. Fitzgerald
Pulp-reducing apparatus C. W. Shartle
Pump C. H. Fox
Pump and air compressor L. H. Nash
Pump, Pressure and relief A. Eimer
Pump, Rotary pneumatic F. C. Fesenbek
Punching and shearing mechanism L. C. Koehl
Puzzle W. T. Rutledge
Quick-traverse control S. Einstein
Quill cleaner J. H. Smith
Radiators, Attachment for hot water C. E. Briney
Rail-fastener J. B. Atwood
Rail-fastening device J. H. Messner
Rail-joint P. Hadnagy
Rail-joint W. Armsworth
Rail-shifting apparatus R. Kleber
Rail stay J. M. Vail
Rail tie I. A. Miller
Railway signal C. Aurand
Railway tie A. Bacca
Railway tie and fastener D. McLellan
Railway track-tamping machine N. Talarico
Railway vehicles, Buffer coupling for E. Ullmann
Rake cleaner F. B. Boosveld
Rake cleaner C. Cordes
Raker tooth swager R. J. Brough
Razor hones, Bath for J. E. Clark
Razor-honing device A. Lo Casto
Receptacle cover G. P. Jennings
Recording machine C. E. Tomlinson
Reflector, Prismatic glass O. A. Mygatt
Refrigerating by means of liquefied gas, Apparatus for F. A. Pollard
Refrigerator, Vacuum-walled L. W. Seeman et al.
Registering system (reissue) R. H. Long
Refuse disposal and reduction plant G. W. Haskin
Resinous composition M. J. Callahan
Resinous composition and making the same M. Callahan
Resinous condensation product M. J. Callahan
Retort or still J. H. Castana
Road-leveling device N. S. Monroe
Road-making material G. Sprung
Rolling mills, Feed mechanism for tube H. Stuting
Roof flashing insert W. A. and F. G. Wittbecker
Rotary engine F. I. L. Bylger
Rotary mixer O. J. Moussette
Rubber blocks for springs, &c., Manufacturing A. G. Spencer
S-iron-bending machine F. J. Schroeder
Sad-irons and the like, Electrical connection for E. A. Rutenber
Safety-deposit box C. Bartels
Salt-making apparatus C. L. Weil
Sand-molding apparatus E. H. Mumford
Sash-operating mechanism G. G. Britton
Sausage stuffer G. J. Sayer
Sausage stuffer-controlling device G. J. Sayer
Saw-sawage die A. K. Hanchett
Scale B. W. King
Screen fastener, Window and door F. M. King
Screens and sash, Hanger for M. C. Palmer
Screw J. N. Lee
Screw blank-making machine G. T. Warwick
Screw joint coupling for supply pipes, Adjustable P. Mueller et al.
Sealing and opening device (reissue) E. D. Waterbury
Seaming machine, Double- J. J. Griffin et al.
Selector-switch, Automatic J. N. Reynolds
Separator H. P. Ewell
Separator W. I. Morgan
Sewing machine, Blindstitch W. E. Bailey
Shade, Adjustable window- D. H. Harnly
Shaft coupling W. H. Little
Shaft hanger C. A. Brinley
Shifting, Flexible G. H. Hayes
Sharpener, Lawn mower G. W. Miller
Sharpening, Lawn mower J. J. Chesbro
Shock absorber, Road vehicle J. J. Griffin et al.
Shock-absorbing wheel H. A. Becker
Shoe-polishing machine A. H. R. Heller
Shoes, Adjustable auxiliary shank for M. E. Normandin
Show case door M. Kump
Sign, Electric H. Deschere
Signal apparatus C. G. Kamiske
Signaling apparatus E. Lissauer
Signaling apparatus E. D. Lopez
Signaling system, Selective E. R. Gill
Silo and tile therefor J. Merley
Skirt, Divided F. R. Galluzzo
Skiing machine L. Muth et al.
Skiing machines, Device for mounting the feed disks in L. Muth et al.
Slag-handling apparatus R. C. Gangewere
Sled T. J. Phillips
Sleeve, Storm H. Hertz
Slicing machines, Material clamping mechanism for J. H. Hampp
Snare-trap J. La Frenier
Sorter C. E. Leeper
Sounder, Electromagnetically-operated C. J. Schwarze
Speed-comparing device R. Miller, Jr.
Spraying machine R. F. North
Spring clip and yoke J. F. Holcombe
Spring coupling K. Voller et al.
Spring wheel F. P. Holmes
Springs, Device for opening elliptical C. N. Sowden
Sprinkler and water pail, Convertible J. J. Slitski, Jr.
Square, Bevel- L. Spies
Stake pocket, Collapsible J. J. Tatum
Stanchion J. C. Fitzgerald
Steering compensator for rowboat motors O. F. Fisher
Steering mechanism O. F. Persson
Steering wheel J. S. Hill
Still C. L. Turner
Stoneworking machine L. Muste
Stove, Collapsible E. Davis
Stove, Gas C. F. and F. L. Grady
Strainer and sifter, Combined L. A. Drynan
Subterranean strata, Ascertaining the nature of H. Lowy
Sulfo compounds of quiniolin-4-carboxylic acids arylated in the 2 position A. Thiele
Sulfur dioxide, Producing H. K. Moore et al.
Switching device D. D. Gordon
Synchronism indicator V. A. Wolcott
Syringe J. A. Speck
Tangential-flame furnace W. N. Best
Tank inlet, Swimming J. F. Booraem et al.
Teeth, Retaining means for sets of J. Lautenburg
Telescopy, Method of and apparatus for selective wireless F. G. Sargent
Telephone exchange system (reissue) H. G. Webster
Telephone mouthpiece protector C. Russell
Telescope with variable magnification J. Humbrecht
Thermodynamic motor F. W. Hagar
Thermostat H. E. Reeve
Thill coupling A. C. Clemens
Tie plate W. Brenning
Tile, Glass-insert C. G. Blake
Tire L. H. Ferguson
Tire band, Metal T. Higgins
Tire, Pneumatic or elastic C. Burnett
Tire pressure gage and dust cap, Pneumatic G. E. Traub
Tire-protective rivet E. B. Stimpson
Tire-supporting receptacle R. Eisenmann
Tire valve tool E. N. Haverfield
Tire, Vehicle M. C. Overman
Tires, Means for automatically inflating pneumatic A. L. McDonald et al.

Tires, Tubes for Pneumatic. W. A. Vail et al.
Tobacco hanger. J. A. Atkins
Tobacco shears. J. A. Weaver
Tongs, Extension pipe. W. Hosier
Tongue, Adjustable. W. A. Watts
Tool holder, Ratchet. J. T. Barber
Torch, Autogenous-welding. E. A. Miller
Tower, Extensible. H. G. Donigau
Toy. D. Heyman
Toy gun. F. P. Hoffman
Toy pinwheel. T. Graham
Toy, Wheel. S. Nagy
Tractor, Front-drive. F. M. Vandervoort
Train brake. C. R. Nijseu
Train lines, Self-coupling for fluid. C. E. O. Langlais
Train-locating and time-recording apparatus. B. F. Osborn et al.
Train-stop device, Automatic. W. E. Wells et al.
Train-stopping system, Automatic. J. L. Nebble
Transformer. N. A. Wolcott et al.
Transmission mechanism. H. Devlin
Transoms, doors windows, panels, &c., Closure for. J. Holland
Track cleaner. G. W. Green et al.
Tractor. A. Frederick
Trap. B. A. Shaw
Trap. E. T. Dawson
Trolley attachment. F. A. Schmediughoff
Trolley-pole controller, Automatic. J. J. Mahau
Toy (Reissue). G. A. M. Liljencrantz
Toy gun. W. A. Gay
Toy railway system. T. C. Spelling
Trolley mechanism support, Electric. F. C. Cosco
Trousers, Device for attaching stiffeners to. C. Heymann
Truck. H. E. Johnson
Tuft-fastener. J. J. Lorzing
Turbine, Hydraulic. J. F. Cachin
Turbines, compressors, pumps, blasts, and the like, Diffuser for steam. B. Ljungstrom
Turpentine condenser. H. L. Hough
Turpentine-separating apparatus. H. L. Hough
Two-cycle engine. A. F. Riedl
Typewriter manifold attachment. T. Norpoth
Typewriting and adding machine, Combined. A. H. Ellis
Umbrella, Self-opening and closing. W. Schaaf
Underreamer. H. Gearing
Underwear. J. E. Goodenow
Valve. H. Froehlich
Valve and decarbonizer for explosion engines, Auxiliary air. J. N. Hogg
Valve, Auxiliary pressure-control. S. G. Neal
Valve controller. W. Mennie
Valve, Engineer's brake. J. R. Snyder
Valve for dry-pipe fire sprinkler systems, Automatic. W. C. Bryce
Valve for engines, Rotary. E. E. Shafer
Valve for steam chests. R. C. Kilham
Valve, Gate. T. M. Eynon
Valve, High-pressure release. F. Phelps
Valve, Pressure and temperature control. J. C. Hornung
Valve, Pressure-regulating. W. Ross
Vessel for freight or passengers. W. A. Rupert
Vessels, Method and apparatus for floating and repairing stranded. H. B. Saunders
Veterinary mouth speculum. A. Littauer
Valve, Safety. H. Steinberg
Vaporizer. O. P. Underwood
Vehicle attachment, Motor. C. Grothe
Vehicle heating apparatus, Motor. D. W. Dudderar
Vehicle jack. J. P. Armon
Vehicle propulsion, System of. A. Churchward
Vehicle wheel. G. F. Geb
Vending machine. J. A. Fox
Vending machine. J. B. Adams
Voltage regulator. C. W. Stone
View-changing device. W. C. Upp
Water heater. A. H. Hard
Washboiler drain attachment. F. A. E. Goodroad
Washer, Tool for preparing work to receive a lock. T. Ganderton
Watch spring safety attachment. K. S. Carlstrom
Water heater and purifier. D. Donohue
Water heater, Electrical. R. R. Lockhart
Water meter. J. M. Burton
Water-tube boiler, Vertical. F. J. Doyle
Waterproof and grease-proof material for the manufacture of containers. H. L. G. Moore
Waterproof lining, Removable. H. C. Holmes
Welding. W. C. Bucknam
Well tubings, Perforating tool for. C. H. Gregory
Wheel. W. A. Dodge
Wheel rim and tire. M. H. Cain
Window ventilator. D. Schafer
Windows, Screened frame for ventilating. A. G. Fruhling
Wire stretcher. A. T. Quesnoy
Wire twisting or splicing machine. T. Davitt
Work holder. E. C. Gerber
Wrapping yeast cakes and similar articles, Machine for. T. G. McGirr
Wrench. P. S. Merrill
Wrench. F. C. Socin

Canadian patents may now be obtained by the inventors for any of the mechanical inventions named in the foregoing list, provided they are simple, at a cost of \$35 each. If complicated the cost will be a little more. For full instructions address Inventive Age Publishing Co., 918 F Street N. W. Washington, D. C.

Foreign patents may also be obtained in certain other countries.

Wanted---Inventors' Aid Society.

Inventive genius and wealth never begin together. Wealth may sometimes be a consequence, but never a cause of inventions, for the man of means is too busy spending or making more along the line of his successful business to bother his head with new things to supply the world's new needs.

Nor is the wealth often a consequence. Inventors usually die poor: poor in all save their beautiful dreams and the hopes which have been bread and butter and warmth to them these many years.

It is the "born dreamer" or the thoughtful mechanic who is evolving the strange devices: and such men, as a rule, are handicapped by poverty, hampered by home ties and personally lacking in both the push and the patience necessary to the development, manufacturing and marketing of their brain products.

Ah, the stories we all know of geniuses who have died in poverty and bitterness of soul, like the inventor of the steamboat (not Fulton) because others have unscrupulously stolen and weremade rich off their ideas while they were still dreaming of them! And the other stories we know, more pitiful still, of the men whose wonderful secrets died with them because they had neither the capital nor friends to help them materialize the dreams.

The noiseless gun, recently exploited by the famous Maxim was worked out some years ago by a young man of my acquaintance. He simply lacked the opportunity and the push to make the opportunity, to bring it into notice.

As a rule the inventor puts all his small amount of cash into his first model. Then, unless men of means come to his aid, he can go no further, for it takes machinery to turn out the simplest article, and machinery and workmen require money.

A man in Arkansas left a marvelous \$1,500 cotton-picking machine to go to pieces in the field because he had no more money to spend and no one aided or even encouraged him. Weak, you say? Possibly so, but geniuses and promoters are very different men.

Besides, a man in ragged clothes and rusty shoes cannot so much as gain an audience with the heads of corporations, and nobody lower down ever seems to know anything.

Occasionally some bold spirit in desperation pushes past all barriers and by some hook or crook gains a hearing, but his clothes proclaim his condition: the shrewd men in power realize his necessity without a word from him and, alas, they take advantage of it. He is given a small bait and they pocket the thousands.

Yes, it is a sad old world for the man of inventive mind. He needs ex-

actly what the bad street urchins of New York City have—a "Big Brothers Association."

Heretofore we Americans have supposed that Uncle Sam was playing this role. We prided ourselves on the idea that he stood with out stretched hands, crying to genius. "Bring me your inventions! I will patent them with my seal and secure you against all the world."

The great building at Washington, maintained by the government at vast expense, does a good work undoubtedly: yet there is still something to be desired. For instance, for a small fee the patent is granted: then Uncle Sam turns the inventor adrift. Armed with his paper, the man goes into the market with his machine or device. If he has friends or money enough to start on, all may go well; but frequently in the beginning, law suits are piled upon his luckless head, or he must sue others to maintain his right. To illustrate: A man in Pennsylvania patented a splendid device for use upon railroads. He laid his model and its patent before the directors of a great system whose master mechanic took in all its details. They offered him a ridiculously small sum and when it was scorned they coolly dismissed him. The company at once set to work to manufacture the device in its own shops (not trying for a patent) making a trifling deviation from the original and installing it upon their tracks. The inventor sued them and won—of course! But the case was appealed and re-appealed, with all the artifices for delay that can be brought to bear when wealth and the customary red tape of the law work together. For years this went on, the inventor growing poorer, less hopeful and less able to fight, and the corporation, from the use of the device, saved themselves thousands annually.

As every patent expires in seventeen years the owner, knowing his inability to manufacture the machine and seeing the uselessness of further struggle, finally accepted a small sum and ended his days in obscurity and bitterness. And that railway company is still making rich off his idea!

Uncle Sam, come quick! Protect

your geniuses better, or at least guarantee quick hearings when lawsuits are necessary. Let there be a court in connection with the Patent Office wherein all such claims and only such, should be tried. To have them promptly settled would eliminate much injustice, and the country at large would be the richer because inventions would multiply.

In addition to this Court of Patents I would plead for an association of philanthropists to whom needy inventors could appeal for aid in developing and marketing their discoveries. The aid given need not, should not always be financial: the "Big Brothers" are to act as go-betweens for the man of the threadbare coat and the millionaire. They are to act as instructors to the boy on the farm with his wonderful hay-rake who has no idea how to proceed to secure so much as a patent.

O yes, we know. Patent attorneys play the "Big Brother" to a certain extent. But all of them, good and bad, are in the business to make a living and they usually make a pretty good one. On the contrary, the Inventor's Aid Society should be made up of prominent men from various parts of the country, just as many "commissions" appointed by our presidents in recent years are assigned definite charitable or philanthropic work. This Commission's headquarters should, of course, be in Washington, close to the Court of Patents and in touch with the Patent Office.

To give worthy men a hand so that they can jump the chasm between dreams and realities, to keep the sharks off the unsuspecting and credulous and to enrich the whole nation with new and valuable things—surely this is worthy of even our great Uncle Sam's attention!—*Modern Methods.*

To keep themselves posted in the progress of the arts in which they are interested, inventors and manufacturers should subscribe for the INVENTIVE AGE, which publishes a list of all patents issued each month. The low subscription price and the character of the publication entitle it to the support of all the inventors of the country.

PATENTS

Send Your Business Direct to Washington . . .
. . . Saves Time and Insures Better Service.

Trade Marks,
Copyrights
and
Designs.

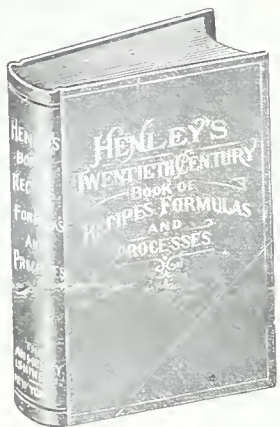
My office is close to the U. S. Patent Office. Personal attention given—OVER THIRTY YEARS PRACTICE. Book "How to Obtain Patents," etc., sent free

E. G. SIGGERS, 918 F STREET, N. W.,
WASHINGTON, D. C.

The Most Valuable Techno-Chemical Receipt Book Published

Henley's Twentieth Century Book of RECIPES FORMULAS AND PROCESSES

Edited by GARDNER D. HISCOX, M. E.



Price, \$3.00 Cloth Binding \$4.00 Half Morocco Binding
800 large Octavo (6 x 9½) Pages.

Contains over 10,000 Selected Scientific, Chemical, Technological,
and Practical Recipes and Processes, Including Hundreds of
so-called Trade Secrets for every business.

To present here even a limited number of the subjects which find a place in this valuable work would be difficult. Suffice to say that in its pages will be found matter of intense interest and immeasurable practical value to the scientific amateur and to him who wishes to obtain a knowledge of the many processes used in the arts, trades and manufactures, a knowledge which will render his pursuits more instructive and remunerative. Serving as a reference book to the small and large manufacturer and supplying intelligent seekers with the information necessary to conduct a process, the work will be found of inestimable worth to the Metallurgist, the Photographer, the Perfumer, the Painter, the Manufacturer of Glues, Pastes, Cements, and Mucilages, the Compounder of Alloys, the Cook, the Physician, the Druggist, the Electrician, the Brewer, the Engineer, the Foundryman, the Machinist, the Potter, the Tanner, the Confectioner, the Chiropodist, the Manicure, the Manufacturer of Chemical Novelties and Toilet Preparations, the Dyer, the Electroplater, the Enameler, the Engraver, the Provisioner, the Glass Worker, the Goldbeater, the Watchmaker and Jeweler, the Hat Maker, the Ink Manufacturer, the Optician, the Farmer, the Dairyman, the Paper Maker, the Wood and Metal Worker, the Chandler and Soap Maker, the Veterinary Surgeon, and the Technologist in general.

Among the Recipes given are:

Bleaching, Etching and Engraving	Recipes for Lubricants and Oils
Recipes for Glass Making, Paper Making	Recipes for Dyes, Colors, and Pigments
Recipes for Ointments	Recipes for Dryers and Inks
Mirror-Making Formulas	Recipes for Artificial Gem Making
Paint Making Formulas	Jewelers' and Watchmakers' Recipes
Gilding and Galvanizing Recipes	Household Formulas
Bronzing, Tinning and Silvering Recipes	Waterproofing, and Fireproofing Recipes
Recipes for Adhesives	Recipes for Cements, Glues, Mucilages
Plating and Enameling Recipes	Recipes for Fireworks
Cleaning Processes, Soap Making	Alcohol and its uses
Leather and its Preparation	Recipes for Essences and Extracts
Recipes for Alloys, Recipes for Solders	Dentifrice, Cosmetic, and Perfume Recipes
Photographic Formulas	Tanning Recipes
Shoe Dressing and Stove Blacking Recipes	Metallurgical Formulas
Rust Preventive Recipes	Hair Restorers, and Depilatories

And many thousands more—Equally Important in the Arts and Manufactures

Address: THE INVENTIVE AGE Publishing Co., Washington, D. C.

A GREAT BARGAIN \$1.75 Value for \$1.00

One Year's Subscription for McCall's
Magazine, Any 15-Cent McCall
Pattern you may select, One
Year's Subscription for
The Inventive Age.

ALL FOR ONLY



\$1.00



McCall's Magazine

Is a large, artistic, handsomely illustrated hundred-page monthly magazine. It contains sixty new Fashion Designs in each issue. Every woman needs it for its up-to-date fashions, entertaining stories and complete information on all home and personal topics. Over one million subscribers. Acknowledged the best Home and Fashion Magazine. Regular price, 5 cents a copy. Worth double.

McCall Patterns

Are so simple you cannot misunderstand them. Absolutely accurate. In style, irreproachable. You may select, free, any McCall Pattern you desire from the first number of the magazine which reaches you. Regular price, 15 cents.

The Inventive Age.

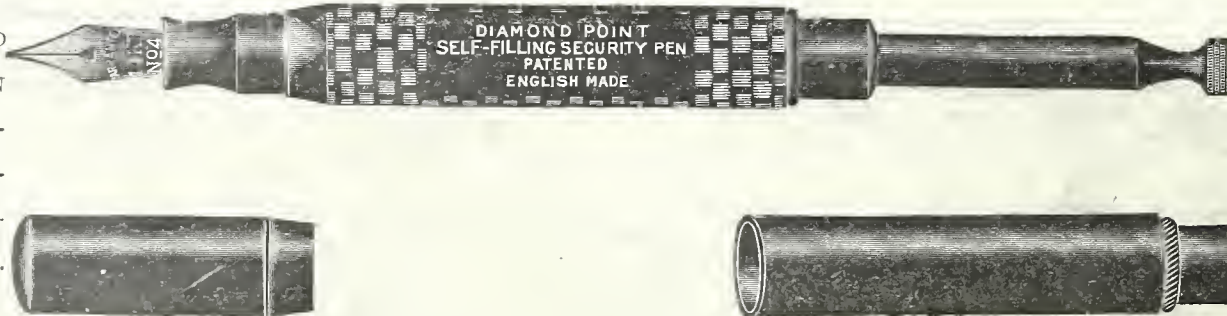
A journal of manufacturing industry and scientific progress. The indispensable paper for patentees. Contains matter and information not found elsewhere. Regular price, \$1.00 per year.

The DIAMOND

SELF-FILLING AND
SELF-CLEANING

Fountain Pen.

IT IS AWAY AHEAD
OF ANY OTHER PEN
MANUFACTURED BE-
CAUSE OF ITS SELF-
FILLING AND SELF-
CLEANING FEATURES.



No Soiled Fingers.

No Lost Time.

Price \$2.00.

Including one year's
subscription to 'The
Inventive Age.'

Address--- INVENTIVE AGE PUB'L. COMPANY, WASHINGTON, D. C.

SEND FOR OUR FREE CATALOGUE OF BOOKS FOR
INVENTORS AND MECHANICS.

PS 1901

